Insights into the Fresh Vegetable Sector in Saskatchewan

A Thesis Submitted to the College of

Graduate Studies and Research in Partial Fulfillment of the Requirements

For the Degree of Master of Science

In the Department of Bioresource Policy,

Business and Economics, University of Saskatchewan

Saskatoon

by

Maryam Ahooghalandari

Permission to Use

In presenting this thesis/dissertation in partial fulfillment of the requirements for a Postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University may make it freely available for inspection. I further agree that permission for copying of this thesis/dissertation in any manner, in whole or in part, for scholarly purposes may be granted by the professor or professors who supervised my thesis/dissertation work or, in their absence, by the Head of the Department or the Dean of the College in which my thesis work was done. It is understood that any copying or publication or use of this thesis/dissertation or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis/dissertation.

Requests for permission to copy or to make other uses of materials in this thesis in whole or part should be addressed to:

Head of the Department of Bioresource Policy, Business & Economics
University of Saskatchewan Saskatoon,
Saskatchewan, S7N 5A8

Abstract

Saskatchewan has good growing conditions, much land and water resources, minimal pest pressure and the expertise necessary for growing high-quality commercial vegetables. Statistics show, however, that commercial vegetable production occupies a relatively small place in the agricultural economy of Saskatchewan. Saskatchewan production accounts for less than 10 per cent of the total provincial market for fresh vegetables, the other supplies of fresh vegetables marketed in Saskatchewan come from sources outside of the province and imports from the southern United States, Mexico, and other warm regions. The majority of Saskatchewan produced vegetables are sold through market gardens, farmers' markets and consumer contract sales. In light of the increasing importance of fresh vegetable demand, examining the role of a new marketing organization in the province is important as it might bring about major realignment of the Saskatchewan fresh produce market. Recently, a project supported by the Agriculture Council of Saskatchewan Inc. (ACS) encouraged producers to organize themselves into picking zones and to work together to supply larger retail markets. The Grocery People (TGP) (a retailer) has agreed to purchase vegetables grown in Saskatchewan for their distribution centre in Saskatoon. This new organization, Prairie Fresh Food Corporation (PFFC), despite its numerous benefits, will test the farmer participants' resolve to cooperate rather than proceed alone. This poses a real opportunity for producers to expand and develop the infrastructure required, as produce can be pooled.

This study uses Transaction Cost, Agency and Monopolistic Competition theories to analyze the factors that hamper farmers from participating in contracts and taking advantage of these potential opportunities. It considers the advantages and barriers or potential challenges to wholesalers and retailers cooperating with this plan. In particular, an economic model of economies of scale through collective action is developed. The model assumes that small

growers can access higher market share through collective action and achieving economies of scale.

The results of personal interviews with eleven members of PFFC are presented and analyzed in a case study format. The case study analysis of PFFC reveals that the organization could provide positive benefits to its members in the early period of its establishment. The results show that the market share of the PFFC is still relatively small throughout the province, but its members expect it to expand in the future. The results suggest that high relative prices in the market and trust in the buyer have a positive effect on the probability of farmer participation in the project.

Table of Contents

List of Tables

List of Figures

Chapter one: Introduction

1.1 Insights into the Fresh Vegetable Sector in Saskatchewan

The world's market for vegetables has undergone significant changes in the last decade (Cook, 2005). Competition has increased, consumers have become more demanding, more efficient transport and storage due to technological progress now exists and food retailing has become much more concentrated. In addition, fresh vegetable consumption has grown over the recent past. There are a number of reasons for this, the most important of which is consumer concerns about health and nutrition (Cook, 2005). There has also been an increase in the number of people who choose vegetarian diets. There is now the expectation that fresh produce should be available during all seasons of the year. Further, there is a wider variety of vegetables available in the market (Green, 2003). The primary objective of this research is to study the supply chain of fresh vegetables involving a new organization in Saskatchewan, and, the incentives, advantages and potential challenges for growers in joining the project.

The Canadian prairies have the highest incidence of individuals under 25 years of age in the country. This demographic group will likely be the most attracted to the fresh vegetable market (Statistics Canada, 2003a, USDA Foreign Agriculture Service, 2003). Vegetables represent a relatively small share of consumers' food expenditures but are dramatically expanding. For each dollar spent on food in Canada's supermarkets, vegetables represent about 8 percent of total expenditures. In Saskatchewan the share of vegetables in total food expenditures is estimated to be 6.5 percent (Agriculture and Agri-Food Canada, 2011b).

Vegetable consumption trends and marketing activities are likely to continue. Despite these trends, however, there has been comparatively little public policy interest in the role of producer based organizations in meeting the growing demand for fresh, high-quality vegetables (Loureiro and Hine, 2001). There has been an increase in mergers between large agriculture

firms. Many of these mergers are due to the development of rapid distribution channels and a rising demand for high quality commodities. These trends are creating new challenges for both buyers and sellers (USDA Gain Report, 2003). This thesis analyzes a case study of a new vegetable marketing organization in Saskatchewan, along with the advantages and potential challenges associated with this type of marketing organization.

There were 4822 vegetable farms in Canada in 2011, accounting for 2.4% of total farms. Ontario is positioned first with 39% of the total vegetable farms in Canada, followed by Quebec (22%) and British Columbia (18%); Saskatchewan had just 1.5% of such farms (Agriculture and Agri-Food Canada, 2011b). According to the 2011 Census of Agriculture, the production of vegetables for the fresh market in Canada in 2010 was 1,089,176 metric tonnes with a farm gate value estimated to be about $594 million which increased by 2% in volume but dropped by 3% in value from 2009. In fact, the farm gate value was up for most of the major fresh market vegetables except for some vegetables such as: broccoli, corn and cucumbers which faced a decline in farm gate value compared to 2009. Generally, the farm gate value for fresh market vegetables in comparison to the five-year average went up 24% ($479.5 million), and production was also up 29% compared to the five-year average (844,795 metric tonnes). In 2011, Canada had an estimated 234,942 acres under field vegetable production. Close to 6.7 million metric tonnes of total vegetables - for the fresh, frozen and processing sectors - were produced. However, as Table (1.1) below shows, total vegetable area in Saskatchewan decreased 5.9% (excluding potatoes), from 813 acres in 2006 to 765 acres in 2011. The crops with the largest areas in production in Saskatchewan were potatoes, sweet corn, cabbage, and pumpkins (Statistics Canada, 2011).

On the other hand, Canada has been an importer of vegetables (fresh and processed) for a long time because of the seasonal nature of vegetable production. In 2010, Canada had a net

exchange deficit in fresh vegetables, with imports being higher than exports in value by $1,646 million. Total vegetable imports, including fresh, dried, frozen and processed, were valued at $2,853.5 million and total vegetable exports were $1,206.8 million in 2010 (Agriculture and Agri-Food Canada, 2011b).

Table 1.1: Total Vegetable Area (excluding greenhouse vegetables and potatoes) in Saskatchewan

Year	2011	2006
Number of farms reporting	180	210
Acres	765	813
Hectares	310	329
Average area per farm reporting (acres)	4	4

Source: Agriculture and Agri-Food Canada, 2012

Saskatchewan has fairly good growing conditions for vegetables, plentiful land and water resources, negligible pest pressure and the ability and knowledge necessary for producing high-quality commercial vegetables. Nevertheless, commercial vegetable growing occupies a relatively small place in the agricultural economy of Saskatchewan. Potatoes are the most important vegetable grown commercially in Saskatchewan. Some economic factors, including irrigation and the availability and cost of transportation to those growers who are far away from their major market, influence the selection of land for commercial vegetable growing. The climate, plant diseases, insect pests, and weeds create some production problems but as yet none appear to be large enough to deter vegetable production in Saskatchewan (Saskatchewan Ministry of Agriculture, 2008a). Another challenge for the Saskatchewan vegetable industry is the shortage of storage space, especially during the winter. Some small farmers need to invest in new machinery to produce commercial vegetables. Labour availability has been low and cost has been high because Saskatchewan did not allow temporary foreign workers to compete for local employment. However, the federal Ministry of Human Resources and Skills Development

Canada (HRSDC) has introduced the Seasonal Agricultural Workers Program (SAWP)[1] to provide stability in the labour force. The SAWP is a way for temporary foreign workers to work in the Canadian agricultural sector (UFCW, 2009).

Production from the province accounts for less than 10 per cent of the total Saskatchewan market for fresh vegetables, the other supplies of fresh vegetables marketed in Saskatchewan come from sources outside the province (the adjacent provinces of Manitoba and Alberta supply 20% of Saskatchewan's vegetable needs, while imports from the United States, Mexico, and other places with warm climates account for the rest (Saskatchewan Ministry of Agriculture, 2012). Saskatchewan annually imports over $20 million worth of fresh vegetables. More than half of the vegetables consumed have been processed to some degree (canned, frozen, pickled), but Saskatchewan has few commercial-scale processors (Saskatchewan Ministry of Agriculture, 2010).

Table 1.2 shows Saskatchewan's production values being far below Manitoba and Alberta production over the same time period, and they are not particularly important in Canadian totals. The challenge for remaining competitive in a market place and access to a higher market share is increasing for small agricultural growers around the province in which they have to compete with growers from other jurisdictions who have more facilities and mechanized production and who can produce for a longer period during the year. Further, vegetable growers' production and marketing practices vary widely from farm to farm, which leads to

[1] The Seasonal Agriculture Workers Program (SWAP) was introduced by the Liberal government of Lester Pearson in 1966 and intended to allow workers from Mexico and the Caribbean who are at least 18 years old to enter to Canada temporarily during the planting and harvesting seasons in specific agricultural commodity sectors when there is no help available from within Canada. These workers are paid at a rate equal to the provincial seasonal average wage rate (Shuker and Stadnyk, 2008).

more heterogeneity in the quality of output. The question of heterogeneity is discussed further in the next chapter.

Table 1.2: Vegetable Farm Cash Receipts by Province

Province	2009	2010	2011
		Value ($ Million)	
Nova Scotia	17	18	X[a]
Quebec	277	282	276
Ontario	493	510	561
Manitoba	36	32	32
Alberta	29	20	30
Saskatchewan	2	2	2
British Colombia	145	147	152
Canada	1017	1032	1097

Notes: 1. Excludes sugar beets, greenhouse vegetables and potatoes.
[a]: Suppressed to meet the confidentiality requirements of the Statistics Act
Source: Statistics Canada (Farm Cash Receipts, CANSIM table 002-0001).

Saskatchewan's seasonal production gives a relative disadvantage to the province's vegetable growers, as retailers require a consistent and year-round production. The most important feature of vegetable marketing relates to the ability to meet the market demand with high quality and consistently reliable produce. Saskatchewan producers must be prepared to offer the various kinds of vegetables in uniform sizes and with quality at least equal to producers from outside the province. In addition, they must grow vegetables on a competitive basis, at a cost equal to or less than alternative sources of supply.

1.1.1 Saskatchewan's fresh vegetable sector

The majority of Saskatchewan vegetables are sold through market gardens[2], farmers' markets, u-pick operations and consumer contract sales (direct markets) (Saskatchewan Ministry of Agriculture, 2005). Currently, very few producers sell through wholesale and retail chains, but a project supported by the Agriculture Council of Saskatchewan Inc. (ACS)[3] is encouraging producers to organize themselves into picking zones and to work together to supply a large retailer (The Grocery People). The Grocery People (TGP), is a part of a large retailer (Federated Coop), and has agreed to purchase vegetables grown in Saskatchewan for their distribution centre in Saskatoon.

ACS has developed a private food label for the Canadian foodservice and the Canadian grocery retail industries in order to give Saskatchewan's producers, processors and marketers a competitive edge in an increasingly competitive Canadian marketplace. As part of its mission, ACS is helping to coordinate a group of vegetable growers from across the province so that they can supply their produce to grocery stores through a number of distribution centers. The project is called the Prairie Fresh Food Corporation (PFFC). The supply chain for fresh vegetable in Saskatchewan and the status of PFFC is presented in Figure 1.1.

As the figure shows, there are different market channels available through which vegetable growers are able to supply their products to final consumers. Three main channels which growers face are farmers' markets, the new marketing organization (PFFC) and other choices that can be market gardens, large retailer etc. PFFC, which is in a yearly agreement with TGP,

[2] Market gardening is a type of direct marketing strategy which is the practice of growing and selling produce on or near the farm site, where the farmer is the end seller. Farmers need to determine the optimum location for marketing (Government of Saskatchewan, 2005).

[3] The ACS is a member-based organization representing Saskatchewan's agriculture and agri-food and agri-products sector, which provides grant funding for projects from primary production and value-added processing to research and market development. (Ag-West Bio Inc., 2012).

commits to market the fresh vegetables of its members. TGP plays a wholesaler role in the supply chain.

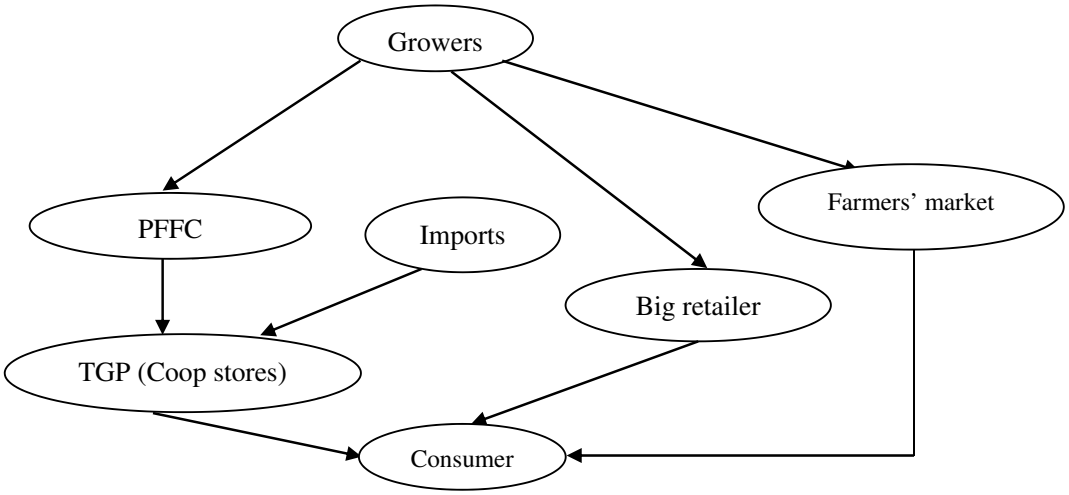


Figure 1.1 Location of PFFC in supply chains for fresh vegetables in Saskatchewan.

In PFFC a group of 16 vegetable producers have pooled resources to work together providing "HomeGrown Saskatchewan" food products for Saskatchewan consumers. This pilot project required the development of a brand (one for Saskatchewan and one for the prairies) and packaging. The brands Home Grown Saskatchewan and Canadian Prairie Grown, respectively, have been trademarked. A wide variety of vegetables (including radishes, onions, garlic, beets, carrots among others) are being grown and packaged in this project. The main products in terms of planted acres are carrots, radishes and onions. TGP, and their parent company Federated Coop, have committed to promoting and developing the new brand through flyers, television and social media. TGP provides the organization with the requested volumes and guaranteed price well before the production season. This new organization, despite its numerous benefits, will require the farmer participants to cooperate rather than proceed alone. This could provide an opportunity for producers to expand and develop the infrastructure

required, as produce can be pooled. If a supply larger than required by the Saskatchewan stores is produced, producers have the capability to supply stores in Manitoba and Alberta through by TGP (Personal communication with Value Chain Specialist, 2013). This thesis will analyze the benefits and potential problems that could be faced by The Prairie Fresh Food Corporation.

The majority of organization members (more than 50%) are Hutterite Brethren colonies which consist of 9 growers who are specialized vegetable growers, however, they also have some other business streams such as cattle or grain and oilseeds. The other grower members are located in scattered areas across the province and are primarily producing vegetables. Production costs vary from farm to farm, depending on their facilities (e.g. irrigation systems, their cooling storage and transportation costs). Those growers in Hutterite colonies are able to use family labour meaning workers are likely to be more readily available.

1.2 Problem statement

The market share of supermarkets in the food retail sector is developing quickly in Canada including Saskatchewan (Saskatchewan Ministry of Agriculture, 2010). While these circumstances provide opportunities for small producers, the high standards for packaging, quality, safety, etc. set by large retailers can prevent small producers from garnering such opportunities.

The question that emerges is what are the variables that hamper small vegetable growers from participating in contracts with TGP and taking advantage of potential opportunities? In traditional spot markets, there is not necessarily an ex ante or ex post relationship between buyers and sellers. TGP, however, requires a coordinated relationship with producers in order to ensure a reliable supply consistent with particular requirements. Hence, we try to study the variables that influence growers' participation in relationships requiring closer vertical coordination.

Farmers participating in a sales contract for vegetables need to be knowledgeable about standards, and have the ability to negotiate and oversee the contractual agreements, which may be prohibitively costly for individual growers. Therefore, this research tries to determine and discuss the variables that explain growers' participation in the Prairie Fresh Food Corporation. The main focus is on transaction costs and the role that the new organization could play to reduce them.

1.3 Objectives

The primary objective of this research is to apply Transaction Cost Economics and Agency Theory to examine the following issues:

- How can the supply chain of fresh vegetables involving a new organization in Saskatchewan be characterized?
- What are the incentives, advantages and potential challenges associated with members in joining the PFFC project?
- What is the role of collective action in monopolistic competition vegetable market and growers' participation in PFFC compared to the alternative traditional marketing practices?
- What is the nature and influence of transaction costs associated with the participation of vegetable growers in the PFFC?

A number of studies have examined various key issues contributing to the success or failure of agricultural organizations, whether they are corporations or cooperatives. In order to achieve the objectives, insights from transaction cost economics developed by Williamson (1989) and agency theory analyzed by Arrow (1985) inform the analysis.

To apply these theories to the organization in question, a Case Study methodology is used. As described by Yin (1994), a Case Study is an appropriate research strategy that studies

phenomena with many variables to consider in comparison to the number of observations made.

1.4 Organization of thesis

This thesis is organized in four additional chapters. Following the introduction, the second chapter reviews some previous case studies. A review of the transaction cost, agency and imperfect competitive market literature provides the main theoretical considerations that support this research and, along with a description of the theoretical framework, is discussed in Chapter 3. The three research propositions are presented in Chapter 3. The fourth chapter provides a description of the methodology and data included in this study. It presents an analysis applying the new marketing organization plan in the Saskatchewan vegetable sector using a case study format and summarizes the results of the case study. The propositions are evaluated at the end of Chapter 4. In Chapter 5 the assessment of the objectives originally set out for the research, as well as policy implications, are presented and discussed. Suggestions for further research, and the contributions and limitations of the research are discussed.

Chapter Two: A Review of Case Studies

2.1 Introduction

This study focuses on introducing a new marketing organization for fresh vegetable growers in Saskatchewan. There is some examples of organization that could be used in this thesis to address the research question. Many agricultural producers enter a marketing agreement through collective action to sell more products. Organization members attempt to gain an assured market for their commodities. This chapter provides a brief review of three different agricultural cases to identify some of the challenges faced by these organizations and examine the reasons why farmers vertically integrated and or engage in collective actions. It is valuable to look at other organizations to provide a better understanding of past successes and failures thereby comparing and contrasting with the current case. Three such cases are presented below; the Raisin Administrative Committee (RAC), Sunkist Inc. and the Saskatchewan Wheat Pool (SWP). Physical and production characteristics of various agricultural products affects growers' decisions to join an organization, the three case studies were chosen because they exhibit similar characteristics of perishability and seasonality, in addition, producers pooled their products through these producer organizations.

The first case study is The Raisin Administrative Committee (RAC) in California which was established through the U.S. federal government's Raisin Marketing Order regulating raisin production (Brown, 2000). It authorizes the regulation of the raisin market in terms of the quality, volume and price. The second case study deals with Sunkist Growers Inc.; a citrus growers' non-stock membership cooperative in California and Arizona. Sunkist is the largest fresh produce shipper in the United States. It processes and markets all types of citrus all over the world (Schoenbrod, 1995). The last case study is the Saskatchewan Wheat Pool (SWP) which was at one time the largest agricultural grain handling, agri-food processing and

marketing company in the province of Saskatchewan. It subsequently became an investor–owned firm (IOF).

2.2 The Raisin Administrative Committee (RAC) of California

In the early years of the California raisin industry, in the 1890s, producers would sell virtually all of their raisin production right after it dried, causing the market to be flooded and prices to drop. During this period, the inelastic domestic demand for raisins caused problems, that is, large crops lowered prices to the point where producers made less selling a large crop at extremely low prices than selling a small crop at high prices (Christensen, 2000b).

After World War II, good crops and the loss of consumption due to the ending of a war-time buying program caused over-production in the California raisin industry, meaning the prices received from the market did not yield positive profit levels. The California raisin industry members came together and decided it was time to plan for the future and they agreed that they needed to stimulate demand for their raisins. As a result, in 1949, California raisin growers voted to establish a federal marketing order under the Agricultural Marketing Agreement Act of 1937.

The Raisin Administrative Committee (RAC) is an industry based committee composed of raisin producers, handlers and packers and acts as an administrative body. It is led by a 47 person committee composed of growers, packers and a member of the general public (RAC, 2007). The purpose of the RAC is to administer the marketing of California raisins. The marketing order is said to have "created an industry organization that is stable, enduring, and capable of progressive development and adaptation" (Townsend-Zellner, 1961: 64). Therefore, the marketing order delivered the RAC the authority to market raisins in an arranged way and to control minimum grade and standards. The RAC has changed somewhat over the years but has always focused on enhancing returns for raisin producers. Briefly, setting prices for raisins

in different retail markets, deciding the designation of the raisin crop among various markets, and maintaining storage facilities for raisins to expand producers' market power are the main functions of the RAC (RAC, 2007).

Until 1967 the RAC administered three pools of raisins based on a negotiated percentage of production going to each pool. The first pool was a "free" pool of the US domestic and Canadian markets. The second pool was a "surplus" pool to supply export markets and government procurements. The third pool was a "reserve" pool used to supplement the "free" pool if needed and, if not used up by April or May, was disposed of as "surplus"[4] tonnage. From 1967 until 1977 the RAC negotiated percentages for only two pools, "free" and "reserve". Subsequent to 1977, the RAC allocated "free" tonnage based on an established formula which used "free" tonnage sales in the prior crop year and an evaluation of forthcoming market conditions, while the "reserve" pool became the difference between deliveries and "free" tonnage. The RAC also determines the distribution of the reserve tonnage to different markets and the applied prices to those markets. The RAC sets the portion of raisins that are sent to different outlets and in some of those outlets the RAC sets the price of contributions to the appropriate pool (Brown, 2000).

In addition, raisin producers in California established the Raisin Bargaining Association, Inc. (RBA) as a non-profit cooperative association in 1966, and separate from the RAC (Anderson et al., 2003). RBA consists of approximately 2,000 raisin growers as members (40% of the total raisin growers). When the RBA was formed, the original founding members carried out a Master Contract, with processors (packers) on behalf of the Association's grower members. The Master Contract that is formally called the "Raisin Bargaining Association, Inc.

[4] The difference between the free tonnage and total production (deliveries to packers).

- Contract of Sale" provided the basis for price negotiations for members of the Association. RBA member growers and their respective packers have to enter into written "Individual Agreements" before harvest and delivery which set four key elements including the name of the grower, the number of tons to be delivered, the number of containers required, and terms of payment (USDA, FAS, 2005; IRS Report, 2006).

Under the marketing order agreement, it is required that packers report the weekly grower deliveries to the RAC. The RAC is not able to delay or quicken the payment between the growers and their respective packers for the free tonnage sale since the RAC does not get included in the terms of the free tonnage sale by growers to packers (IRS Report, 2006).

As mentioned above, two pools have been applied to the raisin market, "free" and "reserve" pools. This "free tonnage" is the amount sold by growers to the packers as established by RBA-Packer Contract at a higher price. During the first week of October, the RAC sets the primary free tonnage percentage based on the "trade demand"[5] as the final size of the crop will not be determined until the month of February on the next calendar year (IRS Report, 2006). Normally, by February 15 of the following calendar year the RAC calculates a final crop estimation and recommends that the United States Department of Agriculture (USDA) establishes the final "free" tonnage percentage (Brown, 2000). The final "free" tonnage percentage has always been either equivalent to or larger than the declared preliminary percentage. Then, those producers who have already delivered will be paid the difference in percentage by packer within 10 days (Raisin Administrative Committee Report, 1999).

The free tonnage quantity must meet demands from the domestic market and a major share of the export market as well. Reserve pools are not closed until they are all sold, income has

[5] If the desired carry-out inventory at the end of the year is lower (higher) than the carry-in inventory at the beginning of the year, the difference is subtracted (added) which is called the "trade demand". The RAC must annually calculate the year's "trade demand" for all varieties of raisins. (Brown, 2002).

been received, and expenses have been paid. Each pool stands on its own. As income is received, the RAC makes advance payments, but until the final audit becomes complete, the final payment to equity holders (growers) in each pool remains open. In a reserve pool, there is no requirements schedule for payments to growers (IRS, 2006).

The reserve tonnage is never owned by the RAC. The packers maintain the reserve tonnage under the guardianship of the RAC. The reserve tonnage disposition and how the derived income is paid to the grower equity holders are determined by the marketing order. The reserve tonnage essentially turns into a mandatory system under the supervision of the RAC (IRS, 2006).

Early in the history of the Marketing Order, the raisin growers had difficulties in meeting the demands of buyers in terms of quality. In 1955, the industry developed a program to improve the quality of the raisins delivered. Industry leaders agreed that the program has improved the quality, facilitated sales in domestic and foreign markets, and brought price premiums in foreign markets. Raisin growers have to pass USDA inspection before delivering the free tonnage to a packing house. Raisins are graded at delivery for quality and moisture. Those failed raisins from incoming inspection would be excluded, on the basis of the primary free tonnage percentage recommended by the RAC. The raisin-quality standards which are imposed by the grade and condition program under the Order focus on the variability in quality due to the weather uncertainties during the several weeks when raisins are drying in vineyards. The USDA study reveals that, although the grading program for raising quality has increased production costs and caused some producers to cease raisin production, it has improved the quality, facilitated domestic and foreign sales and led to a price premium for California raisins. It also shows that the volume and quality controls have provided greater price and income stability for California raisins (IRS, 2006).

A packer could supply all of his free tonnage to the domestic market, export market, or a combination of both. Historically, they sell roughly 70% of the annual raisin crop to the domestic market and 30% is exported. In terms of pricing, there are two raisin markets: domestic and export. The price is a combination of the price received for both "free" and "reserved" tonnage and is not determined until the year's production is exhausted. The price for the "free" tonnage is usually higher than the "reserve" tonnage price (Brown, 2000). The domestic price is set for the United States, Canada, and Mexico. Some countries in the world put subsidies on their raisin industry, and thereby, their production costs are lower. Hence, RAC members have to sell at a lower price than the domestic one to be competitive (IRS Report, 2006). The individual packer negotiates to keep the domestic price high to protect their domestic raisin industry. The RAC tries to keep domestic raisin prices as high as possible and uses exports to reduce raisin supplies to maximize net returns to California raisin producers. In high production years the RAC sells the surplus on the world market at lower prices, thereby preserving the higher domestic price. The producer is assisted by receiving a bargained price for a calculated quantity of equal quality raisins throughout the year. If packers tend to sell some of their free tonnage into the export market, RAC does not force any price regulations. If they provide a copy of their bill of lading to the RAC and submit proof of export, the RAC will pay the packers a cash adjustment amount which results in a blended raw product price (Kaiser et al., 2003; IRS Report, 2006).

The RAC also has taken the quality-control problems into account, and has developed a crop-insurance program for raisin producers. Under the insurance plan, growers are secured as a group. For this purpose, each member delivers his entire production to the insurance organization and, all loads of raisins which are rejected as below standard grade are placed in a separate pool. Reconditioning of the raisins and steps to recover as high a percentage of standard quality raisins as possible is undertaken. These reconditioned raisins are marketed in

the usual trade channels for standard raisins, and the remainder is sold for non-food uses. Thus, the insurance program insures against losses and each producer receives some benefits whether his losses are large or small (Pritchard, 1964).

In comparison to the PFFC case study discussed later in this thesis, RAC members are free to sell their products to anyone (wholesalers and consumers) in addition to their contract at prevailing market prices. In both PFFC and the RAC, large retailers/distributors make the decision mainly within the supply chain as well as undertaking coordination and planning activities. Both organizations provide the aggregation of supply to increase the bargaining power of grower-members and extract better margins in their supply chain. Based on RBA-Packer Contract, producers would be initially paid for raisins which are of standard quality and grade as described in the agreement. As mentioned, raisins are graded at delivery for quality and moisture. Further, growers can earn bonuses in terms of quality. This reward policy has not been included in the PFFC contract, all PFFC growers have to meet Canada GAP standards, which are high.

The RAC is a fairly regulated market and has strong exporting potential and exports are identified as an important source of income for growers. They have been very successful in entering high-value foreign markets. The PFFC might be able to follow along in RAC's steps to enter markets in neighbouring provinces. Finally, this marketing order vests considerable market power with producers. The raisin producers collectively gained a relatively high degree of market power through a marketing order giving them monopoly selling power e.g. to keep the price high enough compared to foreign products, RAC would even destroy the extra products and keep the supply constant. Hence, while the RAC case has a number of similarities in terms of some of the challenges faced by growers, it also differs substantially from the PFFC which is a voluntary producer organization, less formal, and much smaller in scale and scope.

2.3 Sunkist Growers Inc.

The Sunkist cooperative has defined itself as a not-for-profit marketing cooperative which is entirely owned and operated by the California and Arizona citrus growers (Sunkist Growers, 2011).

In 1840, growers planted the first citrus seeds in California. In the beginning, distributors and middlemen had direct control over the marketing of fruit (Hoffman and Libecap, 1991). At the time growers entered into a contract with distributors to package and ship their fruit. On the other hand, the distributor shifted the risk and costs to the grower, leading at times to losses. In addition, fruit pests were a major problem from the 1880s to 1920s and, at times, devastated the California fruit industry. Local, state, and federal agencies, however, coordinated efforts to regulate fruit pests and develop a fruit standardization law which improved returns to growers by 1920 (Seftel, 1985).

Citrus growers established associations to pack and ship the fruit of their members. The first citrus cooperatives in California were organized in the 1880s. Several associations agreed with a plan to bring together their associations into one general federated cooperative - meaning that control resides more with the packing houses than the citrus growers. The resulting organization was called the Southern California Fruit Growers Exchange and started using the Sunkist trade name in 1909 (Merlo, 1993). In 1952, the California Fruit Growers Exchange officially changed its name to Sunkist Growers, Inc. In its very first form, the federation included a contractual relationship between a grower and his respective packinghouse association, its district exchange, and Sunkist Growers, Inc. The basic purpose of the Sunkist system is to market the growers' citrus fruit, in various forms, to maximize grower returns (Sunkist Growers, 2011).

Citrus growers produce and market in fresh or processed form in both domestic and foreign markets within the Sunkist System. After the grower picks the citrus and puts it into bins, trucks transported them to the packinghouses. The cleaning, grading, separating by size and packing the fruit are all undertaken in packinghouses (Cazaux, 2005; Boland et al., 2009).

Membership in Sunkist is voluntary and renewed on an annual basis. Four main levels of the Sunkist system form Sunkist's contractual relationships: the grower, packinghouse, district exchange, and Sunkist Central (Kim, 2013). A citrus grower can become a member in the Sunkist System through either of two ways. He/she may join a local nonprofit cooperative and Sunkist Growers, Inc. simultaneously. This would include harvesting and packaging services, and also some orchard services including pruning, frost protection and spraying from the local cooperative. In contrast, the grower could use a commercial packinghouse instead of a local cooperative to provide the services (Kirkman, 1975). Packinghouses and exchanges are separate companies that join together but Sunkist does not own or manage them. The number of Sunkist's directors is based on the volume of fruit which is exchanged through Sunkist and the district exchanges[6] elect these directors. The members of local associations and direct grower-members' groups elect the director of the district exchanges in voting units based on packinghouse dependency (Boland et al., 2009).

Each grower has multiple options to sign a written membership contract; first, they can enter into a contract with Sunkist and a local association[7]. Another way is signing a contract with a licensed packer; the licensed packinghouse signs a concurrent licensing agreement with the district exchange and Sunkist. Affiliation with a Sunkist district exchange is a third option for growers. Growers have to sign the agreement to operate as a regional center for filling

[6] A district exchange is a regional marketing cooperative whose members are local associations or licensed packers

[7] Grower-members are able to establish a cooperative packinghouse as a local association.

orders. All agreements within the Sunkist system are renewed automatically every year unless terminated by either party (Boland et al., 2009).

Due to being an open-membership organization, any citrus grower would be able to join Sunkist and take advantage of its marketing services. Also, the new grower could gain access to Sunkist without making any initial capital outlay because Sunkist's method of financing does not require a capital investment when joining (Merlo, 1993). Citrus growers have an opportunity to compare returns from the Sunkist system with returns from alternative marketing outlets by membership agreement conditions which specified that the member-grower must sell all of the citrus produced on the acreage designated in the agreement through a packinghouse connected with Sunkist. Hence, they could also market fruit from acreage not designated in the agreement outside the system. Therefore, member-growers can potentially achieve better returns for their fruit (Sunkist, 2013).

As mentioned, the organizational structure of the Sunkist System is an open-membership, federated cooperative with highly decentralized decision making which is different from profit-seeking proprietary investor-owned firms (IOF). However, this open membership policy prevents Sunkist from having the power to control its supply. Its members decide how much to produce and Sunkist has no control over the output it must market. The harvesting and packing operations are organized by packinghouse managers and they maintain important reserve rights as regards the pricing of fruit. Also, the final decision about quantity and destination of shipments has been made by the packinghouse managers. Therefore, the Sunkist system has a decentralized form which means it does not have control over how much will be sold in one part of the country or what prices are acceptable to its growers in selling fresh fruit (Rural Business and Cooperative Development Service, 1994).

Although Sunkist is an organization owned by citrus growers it is not vertically integrated and Sunkist cannot dictate the production of citrus to growers. On the other hand, Sunkist can educate its members about what varieties and production practices will result in higher yield and be most likely to generate profits. In order to determine the price, destination and transportation methods, growers and local cooperatives delegate to a district exchange that relies on market information obtained from Sunkist central. Sunkist markets its members' fresh citrus and finds ways to add value to the citrus supply chain the same as many other fruit marketing cooperatives. Sunkist forecasts the available citrus supply for the fresh and processing market to optimize the facilities' usage and to provide sufficient supply to satisfy customer needs. Sunkist markets its fruit to a wide range of customers including wholesalers, retailers and foodservice operators. Sunkist sells more than 80% of its oranges into the fresh market and supplies the rest to processing sector (USDA, 2002).

The leaders of Sunkist have been trying to create trust between its management team and members which helps to sort out a number of common problems due to the nature of cooperatives, for instance: if any potential partners offer a higher price, members are able to sell their produce to it instead of the cooperative or when producers are not able to provide the appropriate quality and quantity of produce, then they can supply their fresh fruits to other markets. They have also developed a mechanism to enforce the private contract which minimizes the possibility of underinvestment incentives in the future (Cazaux, 2005).

In terms of grading, all fruits under the Sunkist trademark have to adhere to the grade specifications. Sunkist establishes, maintains, and enforces an inspection for quality, and rejects those products that are not acceptable, charging back freight thereon to the shipper. Graders carefully examine the fruit. Sunkist Growers, Inc. sorts fresh fruit into a limited number of grades, according to the specific requirements for each grade, and growers are paid

according to the number of units harvested per grade. When pickers harvest citrus, they use special designed clippers[8] for the different citrus varieties. "Once the fruit reaches the packinghouse, they send it to the pre-grade area. Computers grade the color and blemish of the fruit, the conveyor will carry the fruit to storage bins where it is held for packing. The next process is the final grading before packing. The fruit is sorted by grade and carried down the line for packing. The fruit is packed depending on customer need. They are held in a pre-cooler for shipment. The fruit moves on to its final destination by truck" (Sunkist, 2013). Sunkist governs the collecting and assembling of fruits for shipment. Sunkist also provides for the equitable handling of freight charges on fruit in order that no shipper may be at a disadvantage by reason of his location with reference to the location of the processing facilities of Sunkist.

Nowadays, Sunkist is recognized as a global citrus supplier which sends more than 600 products to more than 45 countries, and has established a trademark that is licensed to more than 50 food and beverage companies (Smith, 2004). In other words, the Sunkist brand is carried by different products through this licensing program. In these cases the Sunkist cooperative oversees quality control and advertising standards. Sunkist produces various categories of products, such as fruit juice drinks, carbonated beverages, beverage concentrates, powdered fruit drinks, fruit snacks, frozen fruit confections, vitamins, and chilled fruit jellies. Sunkist always take commercializing and marketing strategies into account since it enables the company to access new local and international markets and take advantage of Sunkist's acknowledged brand (Boland et al., 2009; Sunkist, 2013). All in all, Sunkist tries to expand its market share through quality-control of its own brand. As a result, its exports are expanding as well as its brand-based revenue (Sunkist Growers Annual Report, 2011). This makes Sunkist a

[8] Used for harvesting fruit such as citrus. The citrus clipper has an "anvil" cutting action which means it has a sharp blade that cuts against a "blunt" face. It has a rounded tip that take cares of the fruit's skin from damaging during harvest (Cape Agricultural Products, 2013).

good case study that suggests establishing a common objective among growers and collective organizations can be beneficial for grower members.

RAC and Sunkist organizations market perishable products, hence, frequent transactions occur in their markets and they need to predict future supply and demand which enables them to predict the price. In addition, environmental uncertainties such as weather issues and insufficient knowledge of management could lead to information asymmetry, and thereby, higher transaction costs between parties in the agreement. Hence, these circumstances motivate growers to sign long-term agreements with buyers to provide consistent supply over the year. Another challenge which these organizations face is increasing competition in foreign markets. Their competitors in the world try to produce new higher quality varieties at lower prices. Hence, they attempt to retain their market share through supplying high quality and innovative fresh fruits which have competitive advantages compared to competitors. Moreover, the packaging/processing sectors which are in a contract with these organizations might have problems with logistics (control over time and volume of deliveries), instability of market prices and insufficiently reliable sources of demand information (Smith, 2004). Opportunistic behaviour regarding buyer's payments, along with the ability to demand/order products after the season may put the growers in a weaker market position. These circumstances motivate growers to sign long-term agreements with distributors. As consumers are increasingly becoming more concerned about the quality of fruit, looking for labeling and traceability of products, RAC and Sunkist labeled their products to decrease asymmetric information and to increase consumer satisfaction and demand (RAC, 2013; Sunkist, 2013).

2.4 Saskatchewan Wheat Pool

The Saskatchewan Wheat Pool (SWP) was for decades Saskatchewan's largest and most visible farmer based cooperative. In the 1920s, three "wheat pool" co-ops were launched, one

each in Manitoba, Saskatchewan and Alberta to collectively market wheat through a jointly owned Central Selling Agency (CSA). The Saskatchewan Co-operative Wheat Producers Ltd (Officially renamed the Saskatchewan Wheat Pool in 1953) was specifically incorporated on August 25 1923 to play a part in Canada's growth and development (Fulton et al., 1998). Before the SWP's establishment, Saskatchewan had other elevator companies that colluded on prices and grades, but farmers were unsatisfied because they remained dependent for pricing on the Winnipeg Grain Exchange. As a result, farmers developed the SWP to ensure a "fair" price for their wheat and in 1926 the company purchased the Saskatchewan Co-operative Elevator Company and its 451 elevators and 4 terminals. In other words, their main purpose was to market wheat in an orderly and steady manner directly to importers instead of through the grain exchange (The Canadian Encyclopedia, 2013).

Between 1924–31, all Alberta, Manitoba and Saskatchewan wheat pools achieved market dominance in their respective provinces. The grain would be marketed through pooling accounts, and the "pooled" revenues were paid out to members for each grade of grain regardless of the time of year they sold their grain (Fairbairn, 1984). This company could help ameliorate the seasonal price slump along with immediate delivering after harvest. The prairie pools fell into serious problems due to a series of events: an overpayment on the 1929 crop while grain prices fell below the level already advanced to farmers, multiple-crop-year carryovers, and the 1929 stock market crash (i.e. Black Tuesday). As a result, contracting through the prairie pools was cancelled (MacPherson, 1986). During the 1960s and 1970s, SWP bought its competitors or they closed down, therefore, SWP accounted for a very large market share in Saskatchewan and many small towns. Hence, SWP became somewhat of a monopoly in Saskatchewan grain handling and its members' loyalty was very high.

The SWP had been established to carry on the business of buying, selling, marketing and exporting of grain. To operate a pool for grain received or handled by the corporation and to make advances and payments from time to time on all grain delivered. Actually, the SWP has been known as a dual purpose organization. It provided grain storage, grain handling services and sold crop inputs to its members. The Pool was also the most powerful agricultural lobbying force in the province and represented farmers on agricultural policy issues such as railway transportation costs, taxation and health services. In order to maintain the market share and remain competitive, the Pool continued diversifying its activities and improving its grain handling facilities (Lang, 2006).

The grower delivered his grain to the country elevator. By an arrangement made by the SWP (elevator), the farmer received in cash, from the elevator at which his grain is delivered, a certain price per bushel fixed by the organization. The marketing arrangement created the relationship of principal and agent between the growers and the organization. When farmers delivered wheat to an elevator, a Saskatchewan Wheat Pool elevator agent took a representative grain sample using a grading booklet to determine the grade, quality and weight of the shipment before negotiating a payment price (Fulton et al., 1998).

By the mid 1980's, while the Canadian grain industry faced American competitors, the three pools considered merging as a large cooperative that could confront the heightened competition. They were planning to merge to achieve economies of scale, be more efficient in grain handling, make capital and retain their members' loyalty. It did not, however, come to pass since they could not agree on the details. By the middle of the 1990s, a significant number of SWP's members were close to retirement age and they requested a pay out of their equity. This would lead to significant pressure on the financial resources of SWP. In response, SWP altered its ownership structure to obtain a new additional source of finance. It provided the

means to finance the repayment. The SWP made the transition into publicly traded cooperative in 1996. SWP converted equity to shares that members were able to trade on the stock exchange (Lang, 2006). However, SWP tried to remain a co-op, hence, it issued class A (voting) and class B (non-voting) shares. So, class A voting shares only belonged to farmer members, and each farmer could receive only one class A share. Therefore, SWP still kept voting control within the structure of traditional co-op rights (one vote per member regardless of his owned share). On the other hand, class B shares were issued to farmer members according to the value of their accumulated equity. SWP put a limit on class B shares such as shareholders were not allowed to own more than 10% of the total shares outstanding (Lang, 2006).

Being a member of SWP was voluntary for Saskatchewan grain growers. They could make a decision to enter into an agreement with the company for the marketing of their grain in the required form by the SWP (Lang, 2006). For governance, the province was divided into districts. Farmers in each district elected delegates and these delegates elected a director to the Board of Directors. The board consisted of 16 farmers who represented the class A voting shareholders. In 2000, the board of directors was reduced to 12 members, which consisted of eight farmers and four external directors along with two advisors (The Canadian Encyclopedia, 2013).

By the end of 2000, the number of elevators was reduced to 261 from 500 and SWP's western Canadian market share dropped from 30% to 24% between 1996-2000. In other words, the SWP's policy for increasing the efficiency by closing the elevators, led to reduction in the market share. After becoming publicly traded, many grain producers did not see SWP as a coop anymore and their loyalty to it declined. Then, they sold their products to whoever paid a higher price. Thus, SWP's market share declined further (Lang, 2006).

In the SWP case, the literature shows that deregulation of the grain handling industry, combined with an extremely large debt, put the Pool in a weak position, thereby, it had to cease its operation as a cooperative and transition to an IOF. In addition, over this transition process, the key decision-makers in the organization became overconfident. That led to some poor investments. In addition, the decision-making errors on the part of management (who were not farmers) and board members (who were growers) occurred due to information asymmetry and a principal-agent problem (Lang, 2006)[9]. Information asymmetry can emerge between the board of directors as the principal and senior management as the agent because board members do not possess the same business knowledge as management[10]. Although, some changes happened at the SWP in the 1990s (culture changed, the Pool became publicly traded, and senior management changed), the trust did not change. Becoming a publicly traded company changed the board-management relationship and this was a starting point for increased information asymmetry. Previous studies have indicated that the principal-agent problem played a role in the Pool's financial difficulties (Fulton, 2006). As Lang (2006) discusses, over the next 20 years, the role of SWP declined somewhat. She interprets this slip in the SWP as a loss of member commitment. She defines member commitment as the glue of an organization's existence. According to the Lang's (2006) study, the need for confidentiality increased due to the share conversion and this served as a starting point for information asymmetry. Her interview of past management and elected Saskatchewan Wheat Pool personnel and grain industry affiliates indicated that they believed information was not being shared with the entire board and investments were being made without the board's knowledge.

[9] An agency relationship is when a principal hires an agent to accomplish a task on the principal's behalf (Arrow, 1985). If the interests of the principal and agent are in conflict, their relationship can become a principal-agent problem. Asymmetric information is central to the principal-agent problem.

[10] She mentions there are two situations which are typically considered as principal-agent problem. First, between members as the principal and the elected board of directors as the agent. The second is the relationship between the board of directors and senior management, with the board as principal and senior management as the agent. But, the focus of the thesis is on the second one (Lang, 2006: 33).

2.5 What has been learned from the experience of others?

The discussion of these three marketing organizations yields insights for the PFFC case discussed later in this thesis. It shows that different products require different marketing systems. Marketing services could be influenced by factors such as a product's physical characteristics, which also affect the complexity of transactions between organizations and buyers. For instance, product perishability leads to a more complex marketing system. In the case of PFFC, members pool their products and the organization negotiates prices, volumes, and other contract terms with TGP. The organization makes final payments to growers similar to SWP. Marketing and selling products through the organization is not mandatory in PFFC, similar to Sunkist and SWP. RAC's marketing structure is, for example, mandatory for raisin growers in California. In other words, growers volunteer to enter the organization for supplying into the market versus marketing within a mandatory structure.

In the case of fruits and vegetables, producers deal with an absence of the marketing flexibility compared to grain growers since their products are perishable and must be handled carefully. The buyer requires a consistent supply. On the other hand, due to the perishability of fruits and vegetables, growers need a market for their fresh products and marketing services which strengthens their incentive for establishing a marketing relationship. There is a difference between SWP and other case studies. As wheat producers are able to store for longer period after harvest and also transport to more distant markets, they have more marketing options[11]. In other words, the storability of wheat on farms and the availability of year-round markets make wheat different from other products in terms of marketing arrangements. In the other organizations reviewed members need more marketing services and, therefore, they are more dependent on their marketing organizations. Hence, in fresh product companies, the

[11] The Canadian Wheat Board (CWB) operated at that time and played different roles prior to its reform in 2013.

handling of perishable products contributes to the high level of contracting between sellers and their customers, as compared with the other types of marketing organizations.

In all cases, access to export markets is instrumental in enabling the survival of the organizations. Due to production exceeding profitable levels in the domestic market, entering export markets is the only feasible strategy for producers and their organizations. Also, more efficient public policies that support producers and their organizations to reach external markets with non-bulk products are important. Moreover, according to the literature and observation of the pools and marketing organizations, professional leaders/board members are necessary in order to guarantee success over the long run.

Last but not least, studying and understanding the successful processes of organization coordination and mergers in order to provide a "best practices" for new marketing organizations is useful for the case study.

In the next chapter, the main theories that support this research are presented and discussed. Transaction Cost Economics, Agency Theory and a Monopolistic Competition model are proposed as suitable frameworks to examine the new marketing organization in the Saskatchewan vegetable industry.

Chapter Three: Theoretical Analysis and Literature review

3.1 Introduction

In this chapter, selected theories which are able to shed light on collective action taken by vegetable producers through the Prairie Fresh Food Corporation (PFFC) are reviewed. The chapter starts by introducing a summary of the New Institutional Economics (NIE) approach to the study of choice in institutions. NIE studies the interface between institutions and transaction costs to determine how the transaction problems among parties can be reduced - such as the current case of the new marketing organization (PFFC) that enters into an agreement to market fresh vegetables. By studying the supply chain in terms of an institutional economics perspective, this thesis focuses on the incentives to join the PFFC and the individual behaviours of supply chain participants. Finally, the study presents a summary and conclusion of empirical evidence related to the research question.

This chapter is structured as follows. In section 3.2 the concept of NIE is explained. Section 3.3 describes Transaction Costs Economics (TCE). This theory encompasses any governance structure for carrying out a transaction. Section 3.4 presents the importance and relevant theory of Asymmetric Information. Section 3.5 includes a discussion of Monopolistic Competition which explains the reasons for joining the PFFC and entering into the new agreement with TGP. Section 3.6 summarizes the state of the theoretical literature explaining vertical coordination in the Saskatchewan vegetable industry.

3.2 New Institutional Economics (NIE)

The concept of New Institutional Economics was introduced after the assumptions of the neoclassical theory of the firm about zero transaction costs, full information and privately held resources were questioned. As long as economic behaviour is complicated in the real world, which relates to incomplete information and uncertainties in the nature of the environment,

adherents to NIE relax the neoclassical assumption of perfect information and promote a new theory that is a more realistic explanation of the behaviours of firms in the market (Harris et al., 1998; Royer, 1999; Blandon, 2006).

New Institutional Economics has four fields that are relevant to the study of supply chain relationships: transaction costs, incomplete contract, agency, and property rights theories (Bijman, 2002). The current study focuses on Transaction Cost Economics (TCE) and Contract explanations in addition to Vertical Coordination and Agency theory as applied to the vegetable industry. The following section begins with describing the theory of TCE and then explains how the PFFC case study relates to the theory.

3.3 Transaction Cost Economics

As previously mentioned, we attempt to find the reasons that hamper growers entering into a new transaction. Transaction Cost Economics was inspired by Coase (1937) in his paper; "The Nature of the Firm" which discussed "why is such organization necessary?" (Coase, 1937, p. 388), or in other words, "to discover why a firm emerges at all in a specialised exchange economy?" (Coase, 1937, p. 390). He answered that trading in the market is costly and using the firm (internalizing the transaction) could be a solution (Coase, 1988). Williamson (1975, 1985) developed this idea and described a relationship between the characteristics of transactions and minimizing transaction costs. "A transaction occurs when a good or service is transferred across a technologically separable interface[12]. One stage of activity terminates and another begins" (Williamson 1981a, p. 552).

[12] A technologically separable interface is the boundary of tasks between occurring transactions which is not constrained by the nature of the production technology (Foss, 1998, p. 3).

According to Williamson (1985), the basic framework of TCE is based on two critical behavioural assumptions: bounded rationality (or bounded cognition) (Simon, 1961) and opportunistic decision behaviour in contractual relations.

Bounded rationality means human beings have constrained capacity to fully access information about present and future events because of the complexity of the world. The firm is not able to settle on the right decision since it does not have full information about its relationships. Therefore, actions of trading agents are rational, but limited (Williamson, 1985; Bijman, 2002). This assumption applies to each vegetable grower who has limited information in the context of establishing individual supply relationships with retailers, and has only limited ability to gain it. Hence, it is too costly to individually enter into a contract with a large retailer.

Opportunistic behaviour involves "self seeking interest with guile" (Williamson, 1985, p. 47). Williamson (1985, p. 47-48) also describes guile as "More generally, opportunism refers to the incomplete or distorted disclosure of information, especially to calculated efforts to mislead, distort, disguise, obfuscate, or otherwise confuse. It is responsible for real or contrived conditions of information asymmetry, which vastly complicate problems of economic organization". It means one party takes advantage of its knowledge for its own interests. It might happen due to the fact that parties want to follow their own interests, which could be in conflict with the interests of their partner. Therefore, this opportunistic behaviour of parties in a transaction imposes costs on parties (Bijman, 2002). In our case study, each party may tend to act opportunistically and pursue its own interests in the agreement regarding either the quantity or quality of products.

Williamson (1985, p. 52) also distinguished three dimensions of transactions that determine the form of organization: the presence of transaction-specific assets (asset specificity), the uncertainty surrounding the transaction, and the frequency of transactions. The

three characteristics classified by Williamson are explained in separate sections below, and, since the role of asset specificity explained by Williamson is one of the main factors in the current case study, it is described first.

According to Williamson (1989), asset specificity can take at least five different forms: site specificity[13], physical asset specificity[14], human asset specificity[15], dedicated assets[16], and brand name capital[17] (Bijman, 2002, p. 27). Asset specificity refers to an asset investment made to support the particular transactions (Williamson, 1985). Transaction-specific assets also called relationship-specific assets (which affect the level of transaction costs) because their value outside of the industry or the particular transaction with the other party is lower or null. For example, growers may invest in the development of special skills or knowledge that are considered as specific assets (Klein at al., 1978). The parties in a transaction which involve relationship-specific assets cannot leave the relationship due to the fact that seeking other trading partners would be costly (Royer, 1999). In the case of the fresh vegetable industry, asset specificity exists that might lead to opportunistic behaviour. For example, the storage facility in vegetable production is an example of a specific asset. The positive reason for investing in this new equipment is that vegetables can be kept fresh until transportation to the warehouse, but, the value of the asset is considerably lower in other transactions outside of the industry since most growers are not growing exclusively vegetables and this type of asset would not be used in production of any other product. Also, this would occur when the storage facility was constructed specifically to supply this big retailer rather than farmers' market which does not

[13] Site specificity refers to assets that are located close to each other in order to economize on transport and inventory costs (Williamson, 1989, p. 143).
[14] Physical asset specificity involves investment in capital assets that are used specifically for the particular transaction (Williamson, 1989, p. 143).
[15] Human asset specificity is particular knowledge and capabilities of a group of workers that have been used for a specific transaction which are more valuable within a relationship than outside (Williamson, 1989, p. 143).
[16] Dedicated asset refers to an investment in general purpose assets based on a promise of selling a significant amount of product to a particular customer in a long-term transaction-relationship (Williamson, 1989, p. 143).
[17] Brand name capital relates to investment in a brand name which would be worthless if the product is no longer available in the market (Williamson, 1989, p. 143).

really need this asset since growers take products right after harvesting and would not store them for a long time, plus growers do not supply high volumes to traditional markets. It may also be too costly to transport the fresh vegetables long distances because of perishability, which means vegetable production is site specific. Therefore, the investor wants to guarantee sufficient sales to gain positive returns on this specific asset. However, given the diverse agricultural business that vegetable growers are engaged in, it seems that, for the most part, they likely avoid investing in specific assets.

In terms of frequency, some transactions happen once, others are repeated frequently (Williamson, 1985). Williamson argues that if a transaction happens more often, it might be worthwhile establishing an organization to facilitate the transaction and, hence, lower costs. In other words, more frequent transaction justifies investment in specialized governance, e.g. a vertically integrated firm.

On the other hand, the influence of frequent transactions can be argued in terms of trust. Regarding the role of trust in transaction costs, the literature shows that trust and transaction costs are related. Repeated transactions provide information about the behaviour of parties. Williamson (1975, p. 109) highlights the existence of trust in transactions and explains its role in reducing the transaction costs, "to be sure, trust is important and businessmen rely on it much more extensively than is commonly realized." Then, he outlines how organizations assumed to have trustworthy behaviour are easily infiltrated and exploited by untrustworthy individuals (Williamson, 1985, p. 65). Hence, from this perspective, frequent transactions will reduce incentives to act opportunistically and it could determine trustworthiness (Hobbs, 1996a). Without trust, transaction costs would be high because of the need for more information and the required monitoring of its partner's action to protect itself against opportunistic behaviour (Kale, Singh, and Perlmutle, 2000). Thereby, if parties in a transaction trust each other, the

transaction costs associated with monitoring and enforcing would be lower (Bromiley and Cummings, 1995). However, in this context, frequent transactions enable the development of trust and reputation, which means that transactions could occur through less vertical control. Thus, the effect of frequency on vertical coordination is ambiguous.

The reputation of the party can be an important element in reducing opportunism, which could also be affected by the frequency of transactions (Chambers and King, 2002). These two elements can strengthen each other which with the frequency of repeated transaction increases the efficacy of reputation effects (Williamson, 2005, p. 25). In the case of fresh produce markets with particular characteristics such as perishability, transactions occur more frequently and need constant monitoring (David and Han, 2004; Wessen et al., 2014). In addition, when asset specificity is high, frequency will also be particularly relevant. The PFFC's agreement is an annual contract and it is assumed that parties will negotiate it every year. This shows that the parties are in a frequent transaction. In the viewpoint of TGP, it prefers to transact with a group of growers rather than individuals since it will reduce costs of repeated transactions and associated monitoring and tracing costs.

Regarding uncertainty, Williamson (1985) defines two interrelated uncertainty types in a transaction: changes in the environment of the transaction and changes that are strategic in nature. The first type could cause disturbances in transactions and, thereby, would increase uncertainty. The second one is more concerned about the behaviour of the transaction partner. For instance, when the quality of a product is difficult to measure, behavioural uncertainty may cause measurement problems which lead to transaction costs, since incomplete and asymmetric information force higher measurement costs (Williamson, 1981a). Fan (2000), Leiblein and Miller (2003), and DiezVidal (2007) have argued that there is uncertainty in asset-specific transactions. In the current case, there is a level of uncertainty related to production and

marketing activities due to the fact that vegetable production is dependent on some exogenous conditions such as the natural environment (weather, pests, disease, etc.) which is not under the farmer's control and, using a specific asset in production such as an irrigation system or storage cooling facilities creates a more complex contracting environment. Hence, price and production are the main origins of uncertainty. Therefore, the first proposition of this study is put forward as an explanation for the relationship between uncertainty and participating in collective action:

Proposition 1 is that in PFFC, if the members are expected to face lower contractual uncertainty, then, the greater their participation in the collective action and also the higher their future investments.

According to Hendrikse (1998b), Figure 3.1 shows how uncertainty influences the choice of organization (vertical coordination) for frequent transactions (Bijman, 2002, p. 30). It shows that if transactions are non-specific, an increase in uncertainty has little effect on transaction type. In the case of transaction specific investments, higher uncertainty is expected to lead to closer forms of vertical coordination, such as vertical integration.

		Asset Specificity	
		Low	High
Uncertainty	Low	Market	Long-term Contract
	High	Market	Vertical Integration

Figure 3.1 The effect of the relationship between asset specificity and uncertainty on organization choice.
Source: Hendrikse, 1998b

To deal with uncertainty, Staatz (1987b, p. 89) also suggests that an increase in uncertainty creates an incentive to move from institutions like spot markets to vertical integration or contracts to accomplish the required coordination. Hence, TCE analysis is highly relevant to the study of the current case in Saskatchewan since it is expected that the characteristics of the transaction, uncertainty, frequency and asset specificity, will affect the choice of governance structure.

Weseen et al. (2014) also develop a model to show the relationships between asset specificity, uncertainty, frequency and opportunism as the core concept of TCE in an ethanol supply chain case study which is presented in Figure 3.2. According to the model, given the need to make investment in specific assets, the level of environmental and behavioural uncertainties within a transaction, and the frequency of transactions affect the risk of opportunism and the hold up problem. Parties in the transaction incur ex ante and ex post costs to mitigate the risk of opportunism to determine the efficiency of different governance structures - namely spot markets, hybrids, or hierarchy. Due to the efficient structure, the outcomes would mitigate a party's vulnerability to opportunism, thereby, it reduces transaction costs which are shown by the feedback arrows.

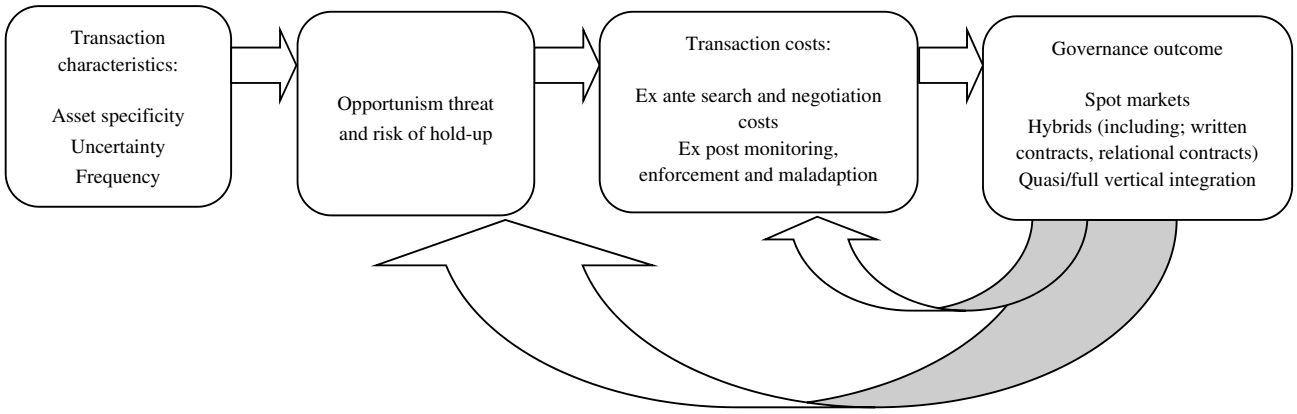


Figure 3.2 Conceptual Model of TCE core concepts
Source: Weseen, Hobbs and Kerr, 2014

Of relevance to the current case study, Williamson (2004) shows that some issues such as perishability of products (e.g. milk, fresh fruit and vegetables) increase the risk involved in a transaction. Hence, he argues that some forms of economic organization (like cooperatives) can be appropriate in agriculture. In other words, coordination and entering into a contract can reduce transaction costs (Hobbs, 1996b; 2004). According to Williamson (1996, p. 153), "the central problem of economic organization" is the choice of governance of transactions. Williamson (2004) distinguishes three institutional structures: spot markets, hybrids and hierarchy or firm. Hierarchy (or vertical integration) means that a transaction is carried out within the boundaries of a firm (Bijman, 2002, p. 26).

Vertical integration and vertical coordination are two different concepts. Vertical coordination is a more comprehensive concept than vertical integration, capturing the entire "process by which the various functions of a vertical value adding system are brought into harmony" (Marion 1976, p. 180; Ollila, 2009, p. 9). Vertical coordination refers to the synchronization of the various stages of a production, processing and marketing system, with regards to quantity and quality. Methods of vertical coordination involve spot markets, contracts, and vertical integration. Contracts may be categorized as market-specific production contracts or resource-providing contracts. In the first one, parties agree about delivery schedule, pricing method, and product characteristics and the buyer engages in few production's decisions, and usually provides a market for products. In the second type, the buyer engages more in production's decisions and ownership of production inputs (Brown, 2002).

Vertical integration is a form of vertical coordination. In vertical integration, a single firm controls the operation of stages of production. In addition, management determines the transformation of resources along the production and marketing stages. The key to vertical integration is asset ownership. However, vertical integration is more studied in the literature.

For example, Schaffer (1986, p. 61) using Schere's definition (1980), describes vertical integration as "the coordination of technically separable activities in the vertical sequence of production and distribution under the control of an organization by ownership". Peterson et al. (2001, p. 150) also define vertical integration as "multiple market stages under single ownership". In this thesis, the vertical coordination structure refers to the use of marketing contracts through PFFC to assist in marketing vegetables.

Figure 3.3 represents a spectrum of organizational structure associated with contracts and vertical coordination. As it shows, marketing and production contracts in addition to vertical integration are methods of vertical coordination (Leibler et al., 2008).

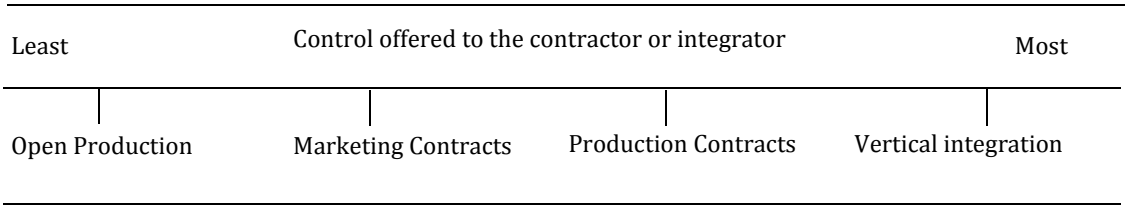


Figure 3.3 Methods of Vertical Coordination along the spectrum of control
Source: Mighell and Jones, 1963

Based on the TCE literature, some reasons for closer vertical coordination (i.e. contracts, vertical integration) in transaction cost models could be: supply differentiated and value-added products to meet consumer's demand (Reardon and Berdegue, 2002; Blandon, 2006), then, obtain premium prices for their differentiated products and gain a larger portion of the consumer's expenditure (Hobbs and Young, 2000; Blandon, 2006). In addition, numerous reasons are counted by the authors: helping parties to exchange information, thereby decreasing transaction costs through improved information flows. Moreover, parties are able to protect their investments and access markets, which protect them in the long term. By achieving higher market share, they obtain more market power through higher bargaining power. In terms of

production, producers can reduce technological uncertainties and increase efficiency by achieving economics of scale in marketing. Regarding non-economic reasons, closer vertical integration could also build trust between members (Baldenius et al., 1999; Szabó, 2006; Blandon, 2006).

Even after entering closer vertical coordination through contracts, however, given the behavioural assumptions; bounded rationality and opportunism, contracts are not necessarily complete. Hart (1995) highlights three reasons for incompleteness of a contract. First, it is difficult to anticipate all contingencies in terms of optimal actions or the information problems (information asymmetries) which will be briefly discussed in the next section. Second, even if all the contingencies are identified, it could be hard to negotiate since some aspects of the business environment change quickly. A third problem is that it is hard to write contracts clearly. Further, with investment in specific assets, transaction between parties and making the contract will lead to costs (Bijman, 2002).

3.4 Asymmetric Information

According to TCE, individuals are boundedly rational and acquiring information is costly for parties since they may have different interpretations of the terms of a contract before making a decision. When parties in a transaction do not have the required information to determine the terms of agreement: this is asymmetric or incomplete information (Harris et al., 1998). Asymmetric information is also observed if the buyer in a contract has better information about the final consumer's demand in the market rather than the producer. Hence, the buyer may exploit his information which leads to production disadvantages for the producer (Bijman, 2002).

In the PFFC case, asymmetric information could happen between it and TGP. For instance, growers are less informed about the market price of the vegetables and consumers' demand

than the TGP and do not clearly know how much the retailer is willing to pay. Moreover, one way to reduce the price the growers receive is to claim that the quality of the vegetables is lower than what they agreed. On the other side, TGP is not fully informed about the quality and the level of effort that growers put into producing high quality vegetables. Hence, growers may claim nefarious levels of effort to request higher price. In other words, there is a potential for opportunistic behaviour by both parties in the agreement.

Three information problems prevent markets from working effectively: hold-up, adverse selection, and moral hazard, which will be discussed separately in the following sections. Briefly, ex post hold-up occurs when the parties in the contract opportunistically renegotiate the terms of the agreement to achieve a greater share of the gains and take advantage of specific investments which have been made by the other party (Klein et al., 1978; Pisano, 1989). Adverse selection occurs when one party has hidden information about intrinsic characteristics, such as technology, quality and risks that can be relevant to contract performance (Anton and Yao, 1994). Moral hazard occurs in circumstances when the parties in the transaction can take an action which cannot be verified and included in a contract's provisions (Arora, 1996). In other words, it refers to cheating on an agreement.

3.4.1 Hold up problem

Milgrom and Roberts (1992, p. 131) describe the hold-up problem: "That one who makes a relation-specific investment is vulnerable to a threat by other parties to terminate that relationship. This threat then permits these parties to obtain better terms than were initially agreed". In other words, they define as "… the general business problem in which each party to a contract worries about being forced to accept disadvantageous terms later, after it has sunk an investment, or worries that its investment may be devalued by others…" (Milgrom and

Roberts, 1992, p. 136). Moreover, the hold-up problem could get worse with the emergence of the modern retailing sector (e.g. delayed payment for delivery of products) (Szabo et al., 2008).

In addition to hold-up problems resulting from specific investments, the literature also defines a potential hold-up problem related to time specificities such as product perishability (e.g., Williamson, 1975). In perishable product sectors (such as vegetables and dairy) the hold-up problem is particularly significant; therefore, marketing organizations are relatively common in these industries (Staatz, 1984; Staatz, 1987b; Kyriakopoulos, 2000). In PFFC given the perishability of fresh vegetables, TGP could seek to take advantage of the growers' weak status of having to sell their products in a short time after harvesting. Thus, there exists a potential hold up problem in PFFC and it may lead to underinvestment in production by the growers because of anticipating that a limited share of the returns will be received. In addition, members in the PFFC are from different parts of the province and they are partially heterogeneous in terms of size and products grown and their own production facilities. This heterogeneity might lead to asymmetric information among them and hold up problems since they make investments at different levels and a conflict of interest could arise within the group. For example, if some growers have made asset specific investments (e.g. purchasing or building refrigerated storage or investing/building storage/packaging sheds), then these growers who finance major investments face the risk that their specific investment in assets will not receive the full returns and it could cause a potential hold up problem and, thereby, result in under investment by members.

Goodhue et al. (2003) discuss the same issue in California wineries and show that a grower may prefer formal written contracts specifying time of harvest and delivery of perishable grapes and mechanisms to correct misrepresentations in agreed conditions. Klein et al. (1978) and Williamson (1979) propose closer vertical coordination as an organizational response. They

show that more complete contracts can decrease the threat of a hold up problem by mitigating the potential for ex post bargaining about terms (Pisano, 1991).

Numerous contributions in the theoretical literature have studied the potential contractual solutions to the hold-up problem such as Edlin and Hermalin (2000), Schmitz (2002), Guriev (2003), Evans (2008), Ohlendorf (2009), Stremitzer (2010), Hoppe and Schmitz (2010a, 2010b). These authors are optimistic regarding the potential to solve the hold-up problem with suitable contracts. Other studies have provided insights about organization theory, with solutions by means of property rights allocation (Hart and Moore, 1999), option contracts (N'oldeke and Schmidt, 1995), financial rights allocation (Dewatripont et. al., 2003), and contracting on renegotiation rights (Che Yeon-Koo and Jozsef Sakovics, 2004).

3.4.2 Adverse selection

One of the problems that arises from asymmetric information in a contract is the principal-agent problem which takes the form of both adverse selection and moral hazard (Miller, 2005). The principal-agent problem is a branch of Agency theory (Sauvée, 1998). Agency theory arises in a situation where two parties (individuals or organizations) have a contractual relationship. One party (the agent) is assigned to perform tasks on behalf of another (the principal) to the benefit of the principal (Royer, 1999).

The separation of agent and principal can create different incentives for parties. The principal is looking for a contract with the agent that will maximize his expected utility, but, the agent may operate the business according to his objectives at the expense of the principal. This means that sometimes the agent's actions cannot be observed by the principal (Royer, 1999; Sykuta and Chaddad, 1999).

Thus, agency theory is very relevant to the institutional structure of the current study of the vegetable marketing organization as a corporation since the agent (the growers) may not act in the best interests of the principal. The important point is how we study the PFFC case in terms of coordination. As a matter of fact, there are two types of coordination; horizontal coordination between growers (as agents) to establish the PFFC (as principal) and, vertical coordination between PFFC (as agent) and TGP (as principal). Since the board of PFFC are also members of the corporation and they are affected by the results of their decision, there would not be too many incentives to cheat each other in the collective action. Hence, the current research studies the vertical relationship between TGP and PFFC in terms of the principal-agent problem. As mentioned, the associated problem with asymmetry information is adverse selection and moral hazard which enable the agent to act opportunistically against the principal.

Adverse selection is the ex-ante costs that arise from hidden information and is the result of "pre-contractual opportunism" where one party has private information before entering into a contract (Milgrom and Roberts, 1992). Agricultural markets are mainly subject to perishability problems and there is imperfect information about product quality (Dimitri and Lichtenberg, 2002). The quality, however, is unknown to buyers before purchasing. Hence, farmers know the quality and can hide information about their commodities and costs of production when negotiating contracts. In other words, they have better information than the buyer about the perishable supplies and can ask for higher payments by claiming higher costs than they actually incur (Wang and Lu, 2012). In addition, adverse selection can be caused by the low-quality producers' tendency to push high-quality producers out from the market if quality is unobservable (Stiglitz and Weiss, 1981). On the other hand, if products are sorted by quality (such as TGP's quality standards), then this will mitigate the adverse selection problem.

Hendrikse and Bijman (2001) find a presence of adverse selection in a heterogeneous growers' association which means the high quality growers have an incentive to underinvest and thereby will leave the heterogeneous growers' association and form a homogeneous growers' association. This new association consists of only high quality growers in order to escape the quality misrepresentation of a heterogeneous growers' association. They characterize a model which emphasizes the trade-off between self-selection and countervailing power, and show that heterogeneous growers' associations disappoint high quality growers because of the uniform treatment of members' policy, although they are strong in terms of countervailing power of the growers collectively. The opposite result arises for homogeneous growers' associations.

Bijman (2005) also shows that there is a positive correlation between the homogeneity of the members and the success of a cooperative. If the amount of output and their quality is similar, then growers are homogeneous. When the members are homogeneous, decision making will be easier. For instance, negotiation among different type of members would be difficult. Alternatively, they would not be willing to distribute the profits equally rather than according to the size of production that have been marketed. If growers are heterogeneous, this might lead to an adverse selection problem which increases transaction costs and there is need to pre-screen potential members to reduce this problem. In case of PFFC, the open membership policy might lead to increases in heterogeneity. In addition, members may vary according to their size, knowledge, and their goals. Hence, this heterogeneity could cause conflict of interests among members and principal-agent problem in horizontal coordination.

For the purposes of this thesis, adverse selection might also happen for the PFFC's situation since the PFFC as agent makes an agreement every year before the cropping season. In general, the quality in vegetable production is only observable by one party at any moment

and the quality naturally declines over time, then the quality of delivered products would be lower than on farm quality. Delivering high quality fresh vegetables from the farm to the consumer includes several steps. Growers harvest the vegetables and sell to TGP through PFFC. TGP transports the product from the distribution centre to coop stores for sale in the retail market. Since vegetables are highly perishable, quality might change over time and coordination among stages along the vertical chain is critical. However, the existence of a quality differentiation system for the vegetables would ease this problem.

3.4.3 Moral hazard

In contrast to adverse selection, moral hazard arises after a contract is negotiated (Royer, 1999). Holmstrom (1979, p. 89) states that the moral hazard problem occurs when individuals engage in risk sharing under conditions that their private actions affect the probability distribution of the outcomes. According to Holmstrom (1979), if a principal compensates those agent's efforts which are not observable for him, and the outcome of the agent's efforts cannot be perfectly measured, then no one can verify the value of the agent's actions, and, these unobservable actions may not be mentioned in the contract. Hence, the supplier as agent can make a higher profit by reducing effort, or e.g. substituting lower quality materials if the buyer (principal) cannot perfectly monitor his activity (Hart and Moore, 1988).

In the case of vegetable production, the grower decides how much effort is exerted to deliver high quality vegetables to the new organization. Required efforts to increase quality may include buying cleaning equipment, hiring labour to spend more time in harvesting and grading, renewing cold storage and transportation facilities. It is clear that these efforts are costly. The wholesaler must also exert effort to maintain vegetable quality which is a cost. TGP desires PFFC to provide safe and high quality vegetables for a premium price. The buyer, however, does not observe the efforts of the members since these efforts are exerted in remote

locations. Hence, in the case of low quality vegetables, it is difficult to determine if the product has low intrinsic quality or the grower exerted a low level of effort to maintain quality. Also, the intrinsic vegetable quality characteristics are difficult to observe and only extrinsic ones are easily observable. It means, for the most part, that only final consumers are able to experience the true quality. Hence, this unobservable quality makes the coordination process more complicated. This problem can lead to a moral hazard problem for PFFC (as agent) and TGP (as principal) which could lead to a reduction in quality. In addition, a dishonest grower may claim that he put in sufficient effort. This asymmetric information about quality causes the moral hazard problem and growers would lose some incentive to deliver safe food and make investments in maintaining or enhancing quality. Moreover, the buyer's willingness to pay would be affected. The discussion above leads to the following proposition about the asymmetric information problem: quality measurement, such as a credible sorting by quality system, plays a role in reducing this moral hazard problem.

Proposition 2 says that: there is always some different level of information in terms of quality and effort in the marketplace which could mean a higher degree of information asymmetry between the parties and this will affect the level of trust among parties and potential for adverse selection and moral hazard problems.

Hueth et al. (1999, 2002 and 2003) consider evidence regarding the relationship between the moral hazard problem and contract design in the fruit and vegetable industry in their research. They develop a model on contracting that takes into account the informational asymmetries. Hueth et al. (1999) show a positive correlation between incentive provisions in contracts related to quality and monitoring between growers and handlers. They conclude that a set of incentive instruments including grading products and making payment contingent on quality can reduce the moral hazard problem through risk sharing adjustments. In later studies,

Hueth et al. (2002 and 2004) emphasize that monitoring is an effective method to solve or reduce the moral hazard problem.

Ge (2012) studies the existence of the moral hazard problem for parties in wheat production and possible ways to mitigate it by using a game theory model. Ge (2012) shows that moral hazard might arise due to several reasons such as uncertainty regarding quantity and quality of farm output, the measurement problem, the relationships among parties in the contract, and the unobservable actions of growers. Thus, the development of rapid and affordable variety identification technology can overcome the misrepresentation problem of wheat quality. Ge (2012) suggests a grain handling system with a functional traceability mechanism. He believes that the advantages of traceability can be used to reduce contamination losses. Further, the information obtained through traceability can be used for optimizing future testing and reduces those moral hazard problems inherent in risk control behaviours.

One of the discussed incentives for vertical coordination is market imperfections which could decrease welfare. Imperfect competition raises incentives for imperfectly competitive firms to coordinate with the buyers. In the following section imperfect competition (monopolistic competition) is discussed as an aspect of the vegetable industry in Saskatchewan. To explain monopolistic competition and see if it can explain PFFC's actions, two scenarios are developed as producers participate in collective action and achieve higher prices compared to dealing with a large retailer individually. In this scenario, the individual firm can move from the spot market to selling to supermarkets through collective action, then, they can achieve higher output and price compared to individual supply to a supermarket. The second scenario considers that although growers get a lower price in joining collective action, they expand their business through supplying a higher volume and utilizing economies of scale. In other words,

members accept lower prices due to the economies of scale as their volumes increase through joint marketing. These scenarios are discussed in the next section.

3.5 A model of Monopolistic Competition for Vegetable Marketing

In general, industrial structures differ in terms of the nature of the product, ease of entry into the industry, number of suppliers, and the nature of competition between suppliers. Economists have distinguished four types of market structures according to the number and nature of competition among suppliers; perfect competition, monopoly, oligopoly, and monopolistic competition[18] (Baumol et al., 1994; Sayre and Morris, 1999; Ragan and Lipsey, 2005). Perfect competition is a circumstance where there are a numerous of sellers and buyers of a product, there are no barriers to entry, and any single seller has no form of control in the market. In perfect competition the output of firms is homogeneous among competitors. In 1933 Edward H. Chamberlin and Joan Robinson (almost simultaneously) published theories on "monopolistic" and "imperfect competition". As of now, the use of "imperfect competition" is more general, it involves all market structures that lie between perfect competition and monopoly (Ragan and Lipsey, 2005)

[18] Perfect competition is characterized by many buyers and sellers, many products that are similar in nature and, as a result, many substitutes. Perfect competition means there are few, if any, barriers to entry for new companies, and prices are determined by supply and demand. The ability of a firm to sell its product is not affected by the behavior of any other firm. It is characterized by numerous participants, a homogeneous commodity, free entry and exit, perfect information and zero economic profit in the long run (Baumol et al., 1994; Sayre and Morris, 1999).

A monopoly is a market structure in which the output is produced and sold by only one producer/seller in the entire industry. Monopoly is characterized by one producer who exercises market power to maximize its profit and many customers, no economic competition and no close substitute goods (Baumol et al., 1994; Sayre and Morris, 1999).

In an oligopoly, there are only a few firms. This select group of firms has control over the price and, the industry has high barriers to entry. In an oligopolistic industry, firms keep their eyes on the actions of their rivals.

A monopolistically competitive market is similar to perfect competition in containing many buyers and sellers, and few barriers of entry and exit. In a monopolistically competitive market, however, goods are not identical, there is a high degree of product differentiation. Also, firms in this market have some power in setting price (Ragan and Lipsey, 2005).

Monopolistic competition is a market structure similar to perfect competition in that there is strong price competition among a large number of firms. A monopolistically competitive market is characterized by: a large number of buyers and sellers, no one of which can influence the market (Maddala and Miller, 1989), relatively free entry and exit from the market and some degree of product differentiation (Saccomandi and Van Der Ploeg, 1998).

In monopolistic competition each firm has only a small market share because of the presence of a large number of firms in the industry. The entry and exit conditions in a monopolistically competitive market are similar to a purely competitive market. Entry and exit are relatively easy. Firms are assumed to maximize profit. The sellers in these markets sell products that are closely related, but not identical. The products have features that differentiate them from the competition. The degree of differentiation depends on the type of product. Given product differentiation, monopolistically competitive firms have downward sloping demand curves, whereas perfectly competitive firms have perfectly elastic demand curves at the current market price. Firms are able to compete in three areas in terms of product differentiation: quality, price, and marketing. Quality involves design, reliability, and service (Jang and Olson, 2010). Firms make efforts to render their own product different or differentiated in comparison to their rivals' products in terms of quality, commercialization process and the type of advertising required to sell it. Individual firms in a monopolistically competitive industry enjoy a 'market niche'. Thus, each firm is not able to influence the price of its differentiated product due to their limited market power. Given that the firm has a downward sloping demand curve, its marginal revenue curve is a downward sloping line that lies beneath the demand curve. In the short run, the equilibrium of the monopolistically competitive market will be reached in the same way as in a monopoly: at the point where the marginal cost equals marginal revenue (MR), *i.e.* profit maximization (Pindyck and Rubinfeld, 2001).

Figure 3.4 shows the demand, marginal revenue, marginal cost, and average cost curves of a monopolistically competitive firm. The firm competes with several other similar firms in the industry where entry and exit are relatively easy. As Q is the produced quantity (MR = MC), P is price. As AC is tangent to the demand curve at point A, P = AC and the firm earns normal profit. However, a firm might incur an economic loss in the short run. If the average total cost is above the market price, then the firm will incur losses. This loss will be equal to the average total cost minus the market price multiplied by the quantity of production. On average they make normal profit over the years otherwise they would exit the industry (Ragan and Lipsey, 2005).

There is no guarantee of long-run economic profits due to the free entry of new firms. Over the longer term and under the hypothesis of free entry, if the representative firm earns supernormal profit, more firms enter, the demand curve of the individual firm shifts to the left, so that the market for that product will shrink until profit has been eliminated. The quantity each firm supplies also declines. Firms will keep entering with long-run equilibrium reached where average cost is tangent to the demand curve and price equals average cost[19]. As price is equal to average cost, at this point no supernormal (economic) profit remains (Baumol et al., 1994). The demand curve slopes down for firms. Each demand curve is unique to the individual firm. As a result, price is not the same for each firm. At this point, since profits are normal, there is no incentive to enter or exit from the industry and equilibrium is established.

[19] The profit maximizing quantity as always chosen at the point where MR=MC.

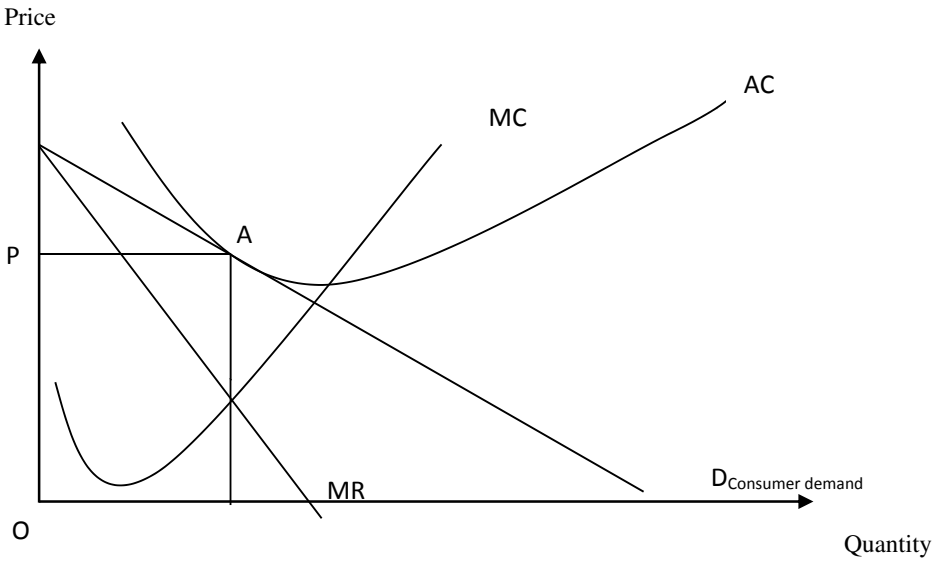


Figure 3.4 Short-Run Equilibrium in Monopolistic Competition
Source: Author

As mentioned above, in monopolistic competition in the short run, firms set prices and quantity to maximize profit. Profits are calculated as (price minus average total cost) times the quantity (as shown in Figure 3.5 the rectangle CPAB). The firm can raise its price above its competitors' prices and make profit and still be able to sell its differentiated product. However, if it raises its prices too high, the quantity it sells could fall dramatically due to the existence of close substitutes. When competing firms in an industry make profits, other firms are given a signal to enter the market. As a result, each existing firm loses some of its market share. The demand for each firm for its product decreases and the demand curve for its product shifts leftward because consumers have more products to choose from. The decrease in demand reduces the quantity to the point that MR = MC and lowers the maximum price in can charge to sell this quantity. More firms will continue to enter the industry and as a result price and quantity fall with firm entry until the average total cost curve is tangent to the demand curve and P = AC and firms earn zero economic profit. However, if there are too many firms in the market, then firms will start to incur costs which induce firms to exit the market, and the demand curve shifts to the right. When the firms are making losses and exiting, there will

be fewer products to choose from. Consequently, the remaining firms see increasing demand, meaning rising sales. Eventually they will return to a normal profit position. Hence, as the process of free-entry and free-exit continues, the long-run equilibrium for monopolistic competition will level out the market price to the average cost, at the quantity where marginal revenue equals marginal cost and there is no incentive to enter or exit the market (William Kerr notes, 2013).

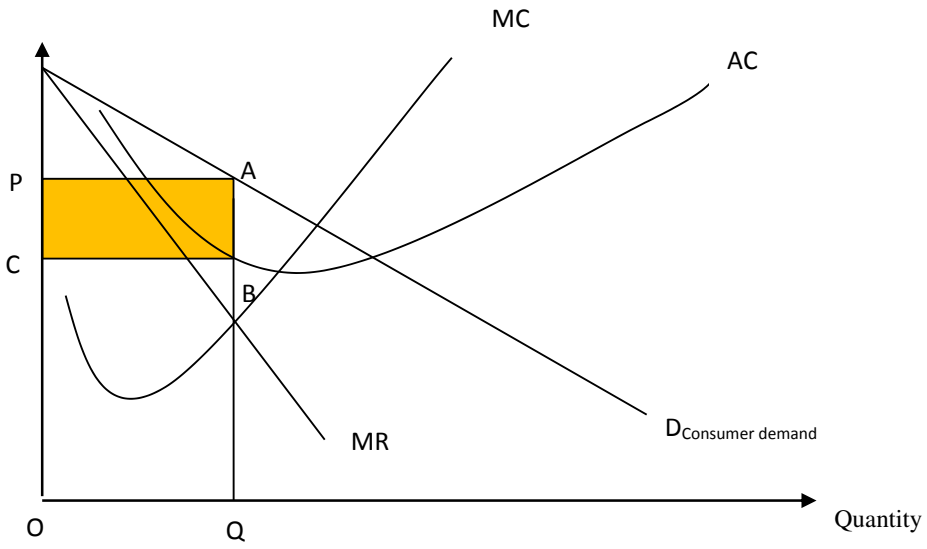


Figure 3.5 Short-Run Equilibrium in Monopolistic Competition for one Firm
Source: Author

These economic profits in a monopolistically competitive industry will induce the entry of new firms in the long run. By entering the new firms, the firm's demand curve D and marginal revenue curve MR will shift to the left, to D' and MR' (Fig 3.6). Eventually, this shift goes to a point at zero economic profit, where D' is tangent to the average total cost curve ATC (in the Figure) (point A) and price equals average cost. The long-run equilibrium solution is the Q' units of output at the price level of P'. The firm does not sell products anymore above average cost and cannot make an economic profit.

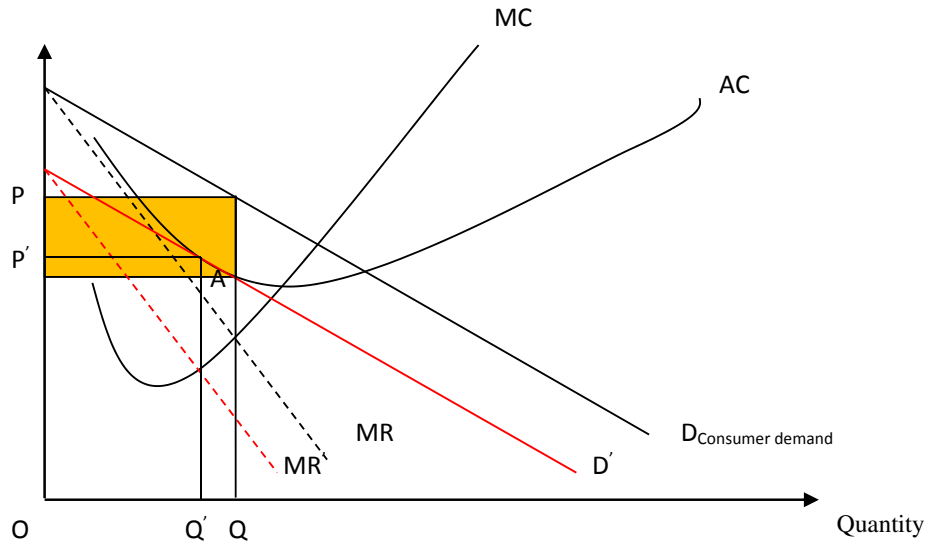


Figure 3.6 One firm in Monopolisic Competition
Source: Author

Figure 3.7 compares three separate firms in a monopolistically competitive market. As previously mentioned, the model of monopolistic competition assumes the existence of a large number of firms and easy entry and exit. Besides, product differentiation gives firms some degree of market power or ability to engage in price setting. Hence, they are able to set different prices due to the differentiation among them. However, this pricing power is quite limited due to the availability of close substitutes. Given the heterogeneity among products, there are opportunities for consumers (who are heterogeneous regarding income, experience, geographic location, loyalty, risk attitude, age, etc) to buy differentiated products (Iliopoulos and Cook, 1999).

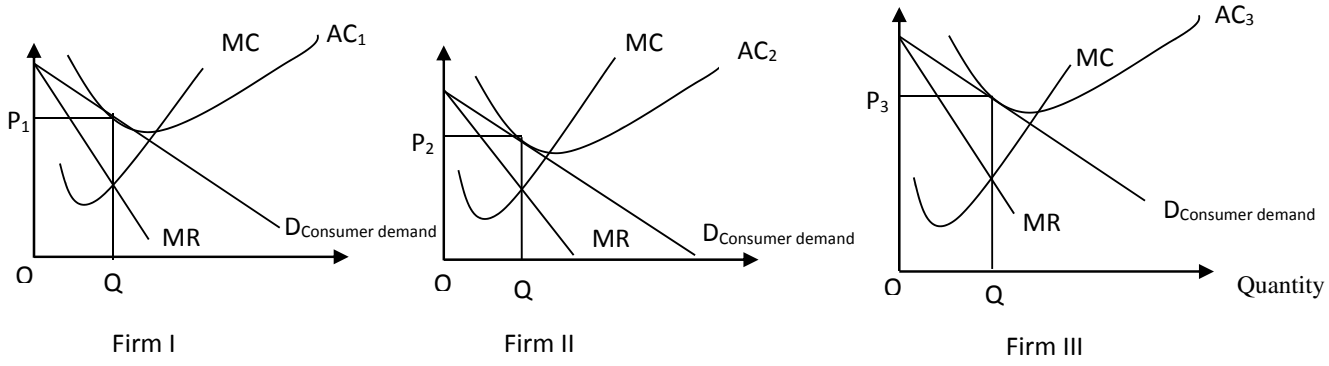


Figure 3.7 Long-Run Equilibrium in Monopolistic Competition ($P_1 \neq P_2 \neq P_3$)
Source: Author

In terms of the vegetable industry in Saskatchewan, markets are characterized to a degree by monopolistic competition with numerous differentiated products under various brands, some from out of province. Producers market individually at sales points such as farmers markets, roadside stands, etc. These sales points lie outside of the formal supply chains which supply the few large retailers. Further, the perishable nature of vegetables, together with asymmetric information and high transaction costs, are characteristic of this industry. As a result, in the vegetable industry, there is a high risk of enterprise failure (Narrod et al., 2009).

Vegetable demand has been expanding due to urban expansion and changing consumer tastes. The majority of vegetable growers are smallholders who are selling fresh, but somehow differentiated vegetables in terms of quality. Given the competition among the local and foreign suppliers, the challenge for the local Saskatchewan industry is to differentiate its product from vegetables marketed by other suppliers. When the vegetables are ready to be sold, farmers have some choices where to sell their produce; including: taking the product to the local traditional spot market, selling directly to the retailers or wholesalers, or become involved in collective marketing action. Each retail outlet has different systems for collecting, storing and paying for the goods they receive.

3.5.1 Derived demand for firms

To explain the potential advantage of collective action, understanding what retailers will be willing to pay sellers is important. Supermarkets will have a derived demand for vegetables.

Given the demand function at the retail level, this is the overall basis for the derived demand for the product at the growers' level. The supermarket demand for the product shows the maximum price that consumers are willing to pay for different quantities. The supermarket's demand depends on how much product the retailer can sell to the consumer. The producer's demand is derived from the primary consumer demand faced by the supermarket. The farm level derived demand for products reveals the maximum price that the supermarket is willing to pay for commodities. The upward sloping supply curve of the product at the supermarket or retailer level is the sum of the marginal cost curves of producers. The supermarket retail price is set by the intersection of the derived demand of the supermarket and the supply curve of producers. This relationship is described in Figure 3.8. $D_{Consumer\ demand}$ shows retail demand from the final consumers for the products, and D_D expresses the derived demand from retailers under a competitive industrial structure.

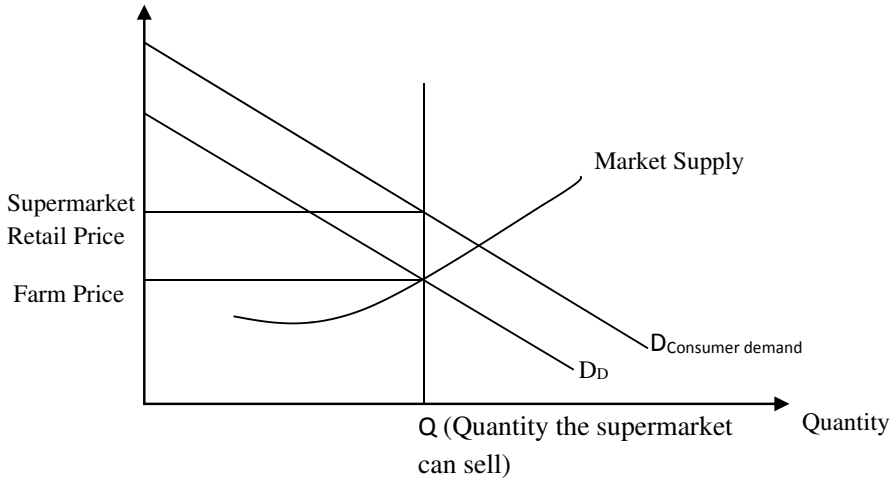


Figure 3.8 The demand and supply market curves
Source: Author

Figure 3.9 shows that one firm might not be able to deal with the supermarket without collective action because of the low price and low quantity along with high cost of production. As Figure 3.9 shows P_{sm} (the farm price in Figure 3.8), the price that the supermarket pays to individual firms in a monopolistically competitive market is too low for firms to make profits, $P_{sm} < AC'$ at Q_{sm}. If P_{sm} could be raised to P_{sm}' (or above) – possibly through collective action – then the firm would produce Q_{sm}'' and make normal profit (or economic profit). For example if the supermarket was willing to pay P_{sm}'' then the producer would make a supernormal profit equal to $(P_{sm}'' - AC) \times Q_{sm}''$. The crucial question, hence, becomes, can collective action induce supermarkets to raise their price to P_{sm}' or above (William Kerr notes, 2013).

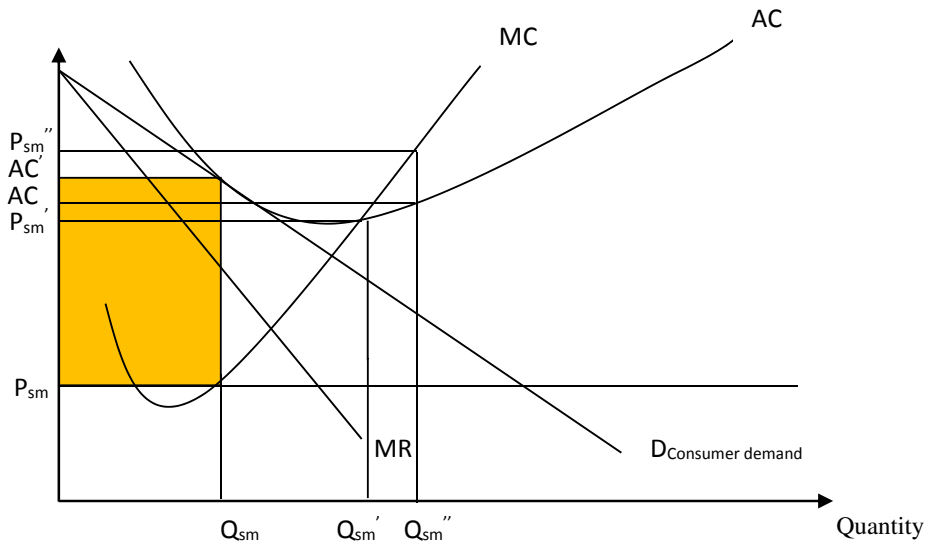


Figure 3.9 One firm dealing with a big supermarket (no collective action)
Source: Author

Markelova et al. (2009) argue that collective action among farmers would be instrumental in improving incomes of firms in monopolistically competitive industries since farmer organizations can help to gain bargaining power and extract better terms of trade from purchasers. Through this collective action, small producers can reduce their costs to access markets and promote market integration, at both the local and regional levels (Barrett, 2008).

3.5.2 Collective actions in monopolistically competitive markets:

This section focuses on the monopolistically competitive industrial structure as the theoretical basis for marketing differentiated agricultural products. Agricultural markets have characteristics (for instance, the bulky and perishable nature of products when they are marketed as fresh produce, specialization of processors' needs for agricultural products, etc.) which are conducive to monopolistic competition. Monopolistic competition in agricultural markets is an often observed phenomenon (Sexton, 1990, Deininger, 1995., Osborne 2005).

Moreover, the rise of supermarkets and the subsequent specialized distribution centres are a challenge for small producers (Hu et al., 2004). They may, for example, have difficulty in dealing with the private standards of major buyers. According to Masten (2000), entering into a contract with a big retailer is more complex for individuals due to the lack of information and the high transaction costs involved in obtaining the necessary information to make a correct decision. Small producers also have limited abilities to process all available information due to bounded rationality[20]. Further, retailers always seek ways to reduce their costs. In general, they would incur higher transaction costs (including information required for screening the reliability of all smallholders, negotiations to write multiple contracts, monitoring food quality, safety and security to maintain consumer trust, enforcement standards, traceability, and labelling requirement costs) when dealing with numerous small producers relative to a few large growers. Therefore, supermarkets usually prefer to work with large volume producers or farmers in groups instead of handling a number of individuals since it provides sufficient volumes of produce at lower transaction costs.

The World Bank (2002, p. 4) explains how market institutions overcome the effects of such market imperfections in agricultural product markets.

> "It indicates that collective action provides multiple functions to markets; they transmit information, mediate transactions, facilitate the transfer and enforcement of property

[20] Explained in section 3.3

rights and contracts, and manage the degree of competition to promote coordination of market functions, reduce transaction costs, enhance opportunities for the poor in markets and to facilitate a continual transition to a higher level equilibrium" (World Bank, 2002).

Numerous studies have investigated collective action in monopolistically competitive agricultural markets (e.g., Azzam, 1996; Cook and Chaddad, 2004; Hueth and Marcoul, 2003; Markelova et al., 2009; Valentinov, 2009; Milford, 2012). They all show that farmer organizations such as cooperatives and similar forms of collective action are ways to reduce high transaction costs.

Sexton (1990) shows that farmer collective action can affect monopolistically competitive markets. Hence, farmers may have an incentive to act collectively and cooperate in a marketing organization to garner a higher degree of market power in their relationships with large purchasers and thereby exert some power over price and output (Deininger, 1995).

In the literature, it is also argued that agricultural producers believed that imperfectly structured markets lead to opportunistic behaviour as an economic consequence of market power. Therefore, collective action may provide farmers an opportunity to share risk and control managerial decision-making for their direct benefit. The marketing organization as a collective action can be seen as horizontally or vertically integrated firms, where the small units (the growers) enter into a contract with the large unit (the wholesaler/processor) (Tennbakk, 1996). The collective action approach is based on ideas taken from New Institutional Economics (NIE) (Cook and Iliopoulos, 2000). Studies also consider collective action as a possible way to increase competition among buyers; thereby contributing to a better standard of living for producers (Sexton 1990; Page and Slater 2003). This activity could offer higher prices for both members and non-members and push the market towards more competitive pricing.

In the previous section, a model of how an individual firm deals with a monopolistic competitive market was derived. In order to explain the farmers' choices (collective action or spot market), the study should attempt to compare the main elements of transaction costs and consider the differences. Coase (1992) believes that the first principle in choosing the right transaction structure is that the transaction costs are to be lower. Hence, the choice for farmers in dealing with any structure depends to a considerable degree on their transaction costs. In joining a new organization of growers, they should approach it as a way to reduce transaction costs. When farmers deal collectively with demand from the retail market, they should ask:

What advantages does collective action bring to them relative to individual action?
If farmers take advantage of collective action, do they increase their profits relative to marketing as individual firms?

Figure 3.10 represents the effects of collective action on market demand and transactions. The model shows how the individual firm can move from the spot market in the industry (e.g. in our case the vegetable industry) to selling to supermarkets through collective action. The consumer demand curve for the vegetable industry which is faced by the supermarket is shown as D_S. The individual firm is able to achieve sales levels that are defined by a supermarket's derived demand curve, D, without any collective action. In these conditions, the supermarket offers a very low price for the product to individual growers which represents the willingness to pay directly to growers by the supermarket in order to acquire vegetables (see Figure 3.8 above). The derived demand arises from the supermarket subtracting its costs, including any profit, from the price it charges in the consumer market.

As mentioned previously, one of the major effects of collective action is to decrease the transaction costs faced by the supermarket in acquiring a unit of product. That is, the organization could verify the quality of vegetables and schedule the delivery time of products,

hence reducing the supermarket's information costs such as the costs of screening and assuring the quality of the product. Figure 3.10 illustrates the effect of introducing the new organization as a shift up in the derived demand for vegetables from D to D' or the derived demand minus the transactions costs. The reduced transactions costs for the supermarket are illustrated by the gap between the derived demand curve before and after collective action. Thus, an important result of collective action could be an effective means to decrease the transaction costs of the supermarket and an increase in the derived demand for vegetables.

The effect on price depends on the shift in derived demand. As a result of organized collective action, the derived demand for vegetables increases, ceteris paribus, which leads to a higher price. It could mean a rise in price from P_{sm} to P_{sm}' (or P_{sm}'') in Figure 3.9. According to Figure 3.10, the presence of collective action will lead to higher prices being offered by big retailers. On the other hand, by entering into a contractual relationship and reducing the supermarket's transaction costs, growers themselves incur new extra costs. Hence, there will be two possible results in joining a collective action:

- The reduction in total cost for the supermarket is greater than increasing costs for farmers resulting in improved returns for the farmers,

Or

- The reduction in total cost for the supermarket is less than the increase in costs for farmers and returns for farmers would be less.

Of course, the real question is whether the rise in prices paid for products, net of increased producers' costs, is sufficient to increase the profits of producers relative to them individually marketing under monopolistic competition. Consequently, this question remains: how do the growers evaluate these different choices and make a final decision?

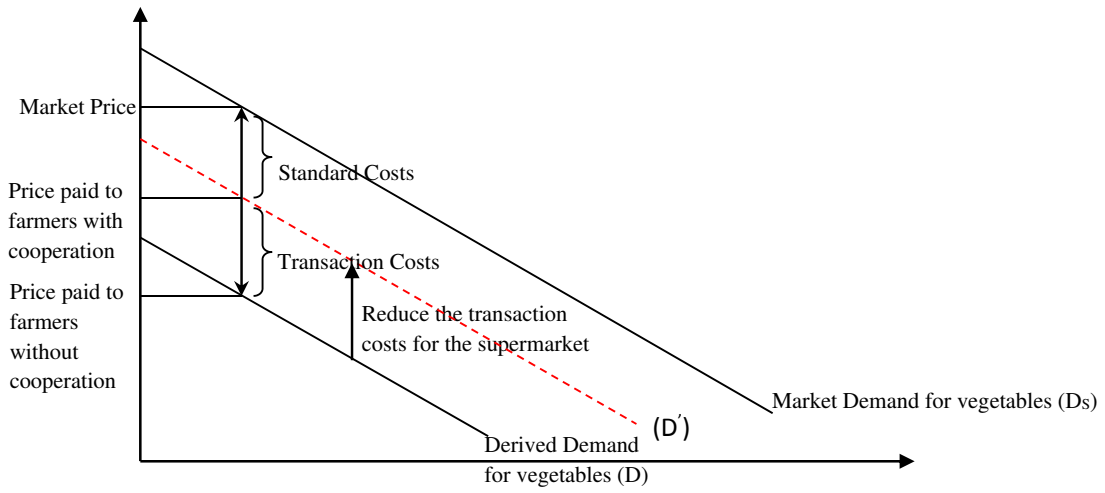


Figure 3.10 Effects of joining collection action
Source: Author

Figure 3.11 illustrates one firm's status in the market after it enters the marketing organization and receives the contract price. As the graph shows, joining the new organization and selling to the supermarket will shift the firm's average total costs (AC) up. In the case shown in Figure 3.11, the price received from the supermarket is sufficiently high for the firm to make supernormal profit in spite of the fact that its costs have increased from $AC_{\text{no supermarket}}$ to $AC_{\text{selling to supermarket}}$. Note the demand curve for the firm would be perfectly elastic as it is selling a homogeneous product to the supermarket through the organization.

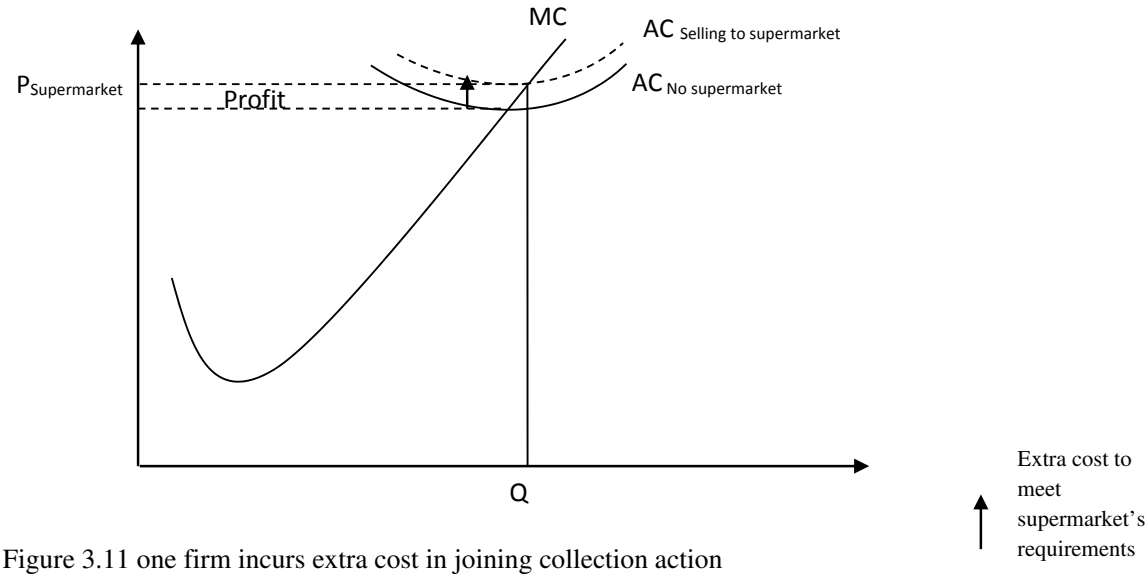


Figure 3.11 one firm incurs extra cost in joining collection action
Source: Author

Prior to collective action, the supermarket derived demand is "Derived demand $_{\text{No collective action}}$" and supply equals "Derived demand $_{\text{No collective action}}$" at Q_1 in Figure 3.12. The price which the supermarket is willing to pay farmers is P_{sm}. At P_{sm} each firm would produce Q_1. At Q_1, P_{sm} is less than AC and the producers would not wish to sell to the supermarket. The supermarket derived demand curve which resulted from collective action is also shown in Figure 3.12. Total output demanded at a determined price when firms join the new organization is Q_2. The sales of each firm depends on their marginal cost curve ($P_{sm}' = MC$). For a given collective action, production costs of each firm shift up at the same time as the supermarket's transaction costs are reduced. Shifting the cost curve up leaves producers getting a higher price, $P_{sm}' > P_{sm}$, but also incurring higher total costs to market their produce. In the case shown (in Figure 3.12) both firms are making super normal profits (the desired outcome from collective action).

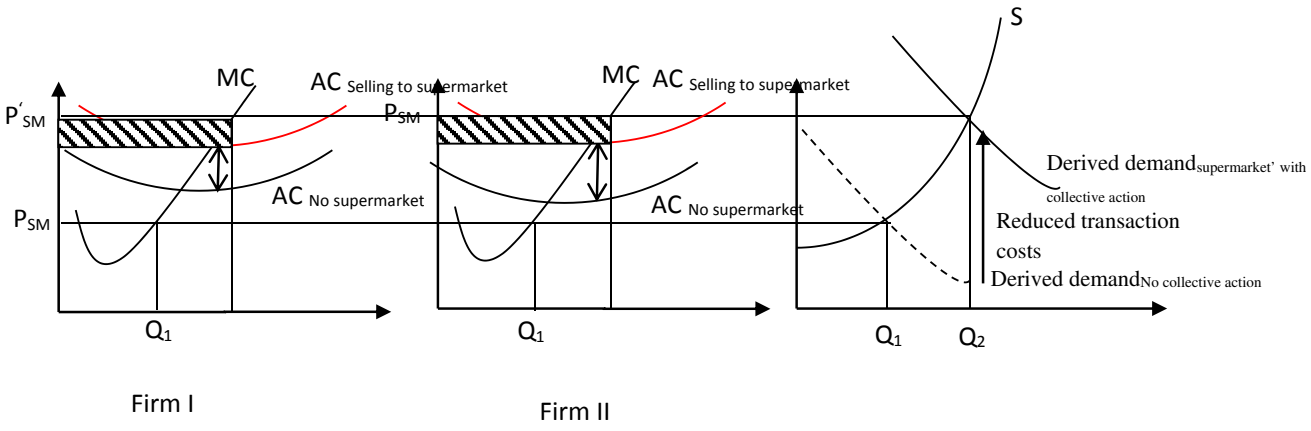


Figure 3.12 firms costs in joining collective action
Source: Author

3.5.3 Compare returns from monopolistically competition with returns from collective action

In order to shed light on the subjects discussed above, two market choices (monopolistic competition vs. collective action) are compared in Figure 3.13. Figure 3.13 shows the demand for the product in the supermarket and two separate representative firms which produce differentiated commodities through different cost levels and sell them in slightly different markets. Therefore, growers receive different prices and make normal profit in equilibrium. Each firm's graph contains the derived demand, average and marginal cost curves needed to analyze transferring to collective action. As mentioned before, the supermarket's supply of the good comes from aggregation of the individual marginal cost incurred by the growers.

Under monopolistic competition without collective action, producers cannot influence the market price and receive a different price for their differentiated good (P_{M1} and P_{M2}) producing where marginal revenue equals marginal cost Q_{m1}, and Q_{m2} and the firms make normal profit, $P_{m1} = AC$; $P_{m2} = AC$.

Figure 3.13 also presents in graphical form the effects of joining a new marketing organization. In other words, it shows entering into contract with a big retailer and supplying through collective action. Note that the outcome includes higher output and price compared to

individual supply to a supermarket. When monopolistic competition characterizes the market and growers sell produce individually to a supermarket, they would be paid at a low price, P_{sm}. Consequently, farmers may have incentives to engage in collective action and supply their products jointly to supermarkets. In this way, collective action at the producing level decreases supermarket transaction costs including information, monitoring, negotiation etc., thereby the supermarket's derived demand curve will be shifted up. Entry to collective action will also shift the firms' average cost up as they incur extra marketing costs in satisfying the supermarket's requirements.

After joining together to engage in collective action, the average cost of firms will rise, from $AC_{No\ supemarket}$ to AC'. There are two possible outcomes. One leads to a failure of the new organization (the rise in unit price is not as much as the rise in unit cost); shifting up the derived demand curve is not sufficient– the case for firm 2, as the average cost curves shift more than the new price, or combination of the two. Hence, successful collective action depends on the potential that collective action is able to improve the expected price sufficiently to offset the rise in costs.

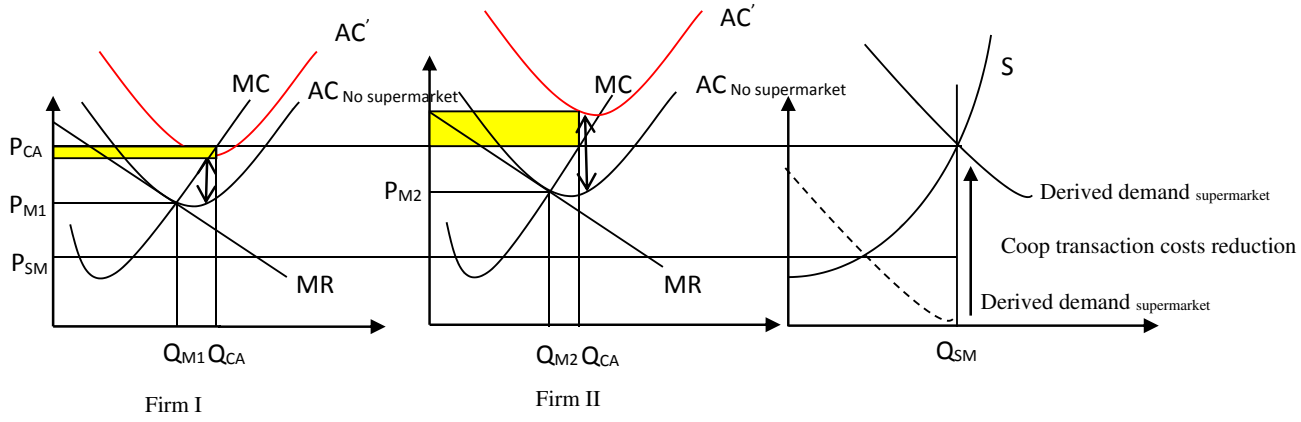


Figure 3.13 comparing monopolistic competition with collective action
Source: Author

In Figure 3.13 firm 1 has achieved success in joining the organization, $P_{CA} > AC'$ at Q_{CA}. On the other hand, firm 2 would be better off not joining the collective action, $AC' > P_{CA}$ at Q_{CA}, so a loss is made.

3.5.4 The potential for economies of scale

In Saskatchewan, most vegetable growers have been selling individually to local farmers' markets. The majority of them take products immediately after harvest. The quality of product is usually high, but the volume is low. The vegetable growers involved in PFFC felt they could increase their volume of vegetables substantially and increase their profits even if the prices selling to a retailer were significantly lower.

The cost per unit, or average cost (AC) is the main subject of economies of scale. It means the unit cost will decrease when the number of units produced increases. It is a long run phenomenon where plant and equipment are not considered fixed (as in the short run). Thus, the producer can build the optimum size of operation given the expected market size. Figure 3.14 shows options available to an individual grower if economies of scale exist. The left most set of curves reflects the short run average costs of production for a specific grower (AC) if the expected market is Q. As Q is too small a market to achieve any economies of scale, the optimal size of operation has a cost structure which is relatively high.

The concept of economies of scale explains the production process and how the firm can enjoy a decreased short run average cost (per unit cost) in the long run when its scale is increased. The production function displays increasing economies of scale if the short run average cost decreases as output per unit increases. As Figure 3.14 shows, $AC' < AC$ and $AC'' < AC'$ (these AC, AC' and AC'' are all short run average cost curves). Only if the expected market size is Q'', can an operation with short run cost equal to AC'' be justified. For example, if larger sales volumes could be sold to a buyer, such as a supermarket, then the investment

required to realize a cost structure such as AC" can be justified. As can be seen from Figure 3.14, if the size of operation giving short run AC" were used to produce only Q, the cost would be at point A. Point B on short run cost curve AC is less than point A on short run AC"- the unit cost at B is less than the unit cost at A.

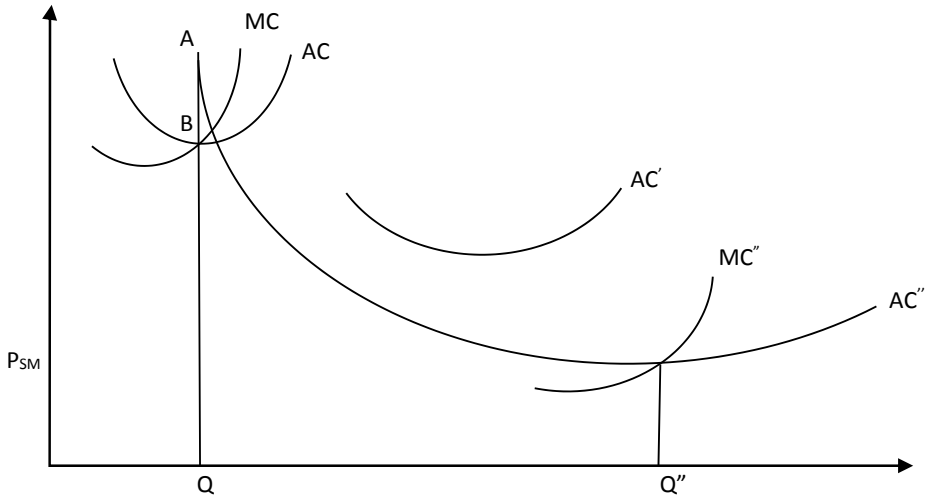


Figure 3.14 The effects of economies of scale on individual firm

As mentioned, a grower joins a collective action with the objective of higher sales and, thereby generating more profit. The cost function could be a place to begin the discussion of the relationship between collective action and economies of scale. Before joining collective action, each grower sells products in the spot market which is monopolistically competitive at P_m in Figure 3.15. At P_m and Q_m, they make normal profit (P_m = AC at Q_m). An individual grower compared to being in a collective group has a high unit cost of production due to the difficulty it may encounter in obtaining credit, getting information, marketing costs, etc. The short run average cost curve (AC) shown in Figure 3.15 reflects the costs one grower can achieve without collective action. As shown, however, shifting to collective action allows them to gain economies of scale and have an operation with short run average cost curve AC'.

An important motivation for a grower to join this collective action is related to their ability to pool production. New collective action provides a way for farmers to join together in an organization and they can obtain a better outcome (higher volume) than by going it alone. This is because the expected market increases from Q_m to Q_{sm} allowing economies of scale to be realized.

If growers sell their products to supermarkets through collective action, they would make new investments and average costs per unit would go down while production goes up as Q increases from Q_m to Q_{sm}, the average cost curve moves from AC to AC$'$. The equilibrium point is where the supermarket price, P_{sm} = MC$''$ and as P_{sm} > AC$''$ at Q sold, the producer makes a supernormal profit. However, they get a lower price through collective action, $P_{sm} < P_m$, but, unit cost of production declines more than the price due to economies of scale.

In the case of fresh vegetables in Saskatchewan, members of the organization may be willing to accept lower prices due to the economies of scale as their volumes increase through joint marketing. In other words, the declining costs arising from economies of scale. This allows members to make new investments to increase output as the market expands. Lower costs based on economies of scale allow producers to accept a lower price. If P_{sm} were offered for Q_m, farmers could not accept it. The new organization can pool resources such as access to special equipment and transportation services, thereby, allowing each farmer to increase output. The related proposition for the new marketing organization would be:

Proposition 3 states that marketing fresh vegetables through new collective action is more economically sustainable than selling in traditional markets.

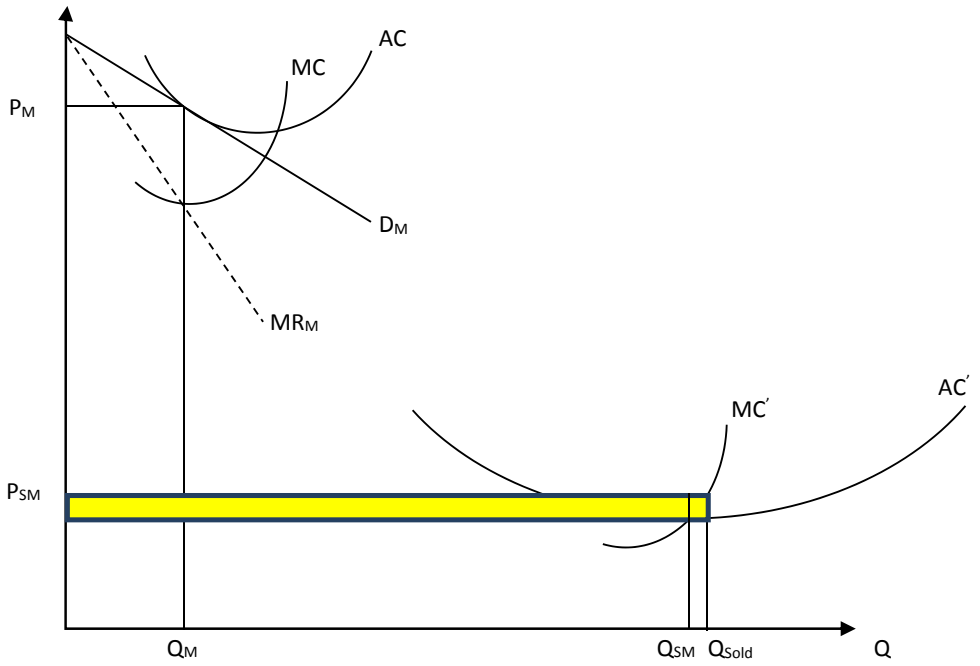


Figure 3.15 Supply to spot market versus collective action in dealing with a large retailer

3.6 Summary

In this chapter the analytical framework of this study has been developed. The chapter started with a discussion of perspectives on New Institutional Economics. The NIE literature keeps the basic assumptions of neoclassical economics such as scarcity and competition, but relaxes others such as inherent rationality and perfect information. Within NIE, the two economic models of vertical coordination (Transaction Cost Economics (TCE) and Agency Theory) were provided. These theories determine factors influencing the producers/suppliers' participation in an agreement and how they are able to supply the retail market by coordination through solving asymmetric information problems. In other words, the Transaction Cost Economics and Agency Theory approaches were applied to analyze the challenges of a new organization and its vertical coordination with the buyer in the case study.

Then, the three main characteristics of transactions that determine transaction costs – asset specificity, frequency and uncertainty – were presented in detail. In TCE, asset specificity is the most important characteristic explaining vertical coordination, along with frequency and

uncertainty. Parties in an agreement deal with uncertainty due to transaction costs in contractual relationships such as the costs of searching for information, establishing market relationships and monitoring performance. When transaction costs are too high, in spite of potential gains, the transaction between buyers and sellers does not occur. Hence coordination might become a key factor to reduce transaction costs. Besides, it is argued that some factors in the agriculture sector e.g. perishable products (physical assets), and specificity of production, can influence vertical coordination. As the TCE literature shows, a producer organization can be an efficient structure in the presence of the hold-up problem, which is caused by increasing levels of asset specificity that may result in opportunistic behaviour by the principal.

The principal-agent problem brings an additional dimension in entering a new agreement. There are two important information asymmetries in the design of contracts: hidden information and hidden action. Hidden information (adverse selection) arises when negotiating the contract. Hidden action (moral hazard), on the other hand, relates to ex post activities after making the contract.

In agricultural products, there is often asymmetric information about the quality and the ability of suppliers to meet the buyer's compliance demands. This ex ante uncertainty regarding quality results in an adverse selection problem (Akerlof, 1970). Therefore, rational buyers and producers anticipate the potential for opportunistic and inefficient ex ante behavior and enter into a contract to mitigate these potential costs. Contracting provides a degree of insurance against supply risk for agents in the agreement. On the other hand, contracts allow the principal to provide the agent with more precise product specifications.

The theoretical model developed for this thesis starts with a discussion of several types of market structure. Then it explains collective action through market imperfections which can improve a grower's competitive position in dealing with a large retailer.

The purpose of the study is to determine under what conditions such collective actions can contribute to enhancing the incomes of growers when dealing with a large retailer. A model is developed to explore how collective action affects supermarket transaction costs and a firm's average costs. It is shown that the new organization incurs extra costs for growers joining the corporation. Joining in collective action increases the firm's average costs as they must undertake activities to meet the requirements of supermarkets. Growers hope that selling their products to a large retailer results in higher commodity volume producing a better outcome than remaining independent monopolistically competitive firms. On the other hand, when growers join a new organization, they are taking action against the market power the retailer could exercise in its dealing with them. Where produce is marketed as a fresh commodity such as fresh vegetables, downstream market power reduces the growers' share of the marketed value. Collective action could be a strategy which increases economic returns in the vegetable market resulting in a more viable industry.

To assess the propositions, a case study approach will be used (the elements of the case study are discussed in the following chapter). Thus, the conceptual framework developed in this chapter is used in chapter 4 to analyze a specific case study in the fresh vegetable industry in Saskatchewan with respect to the theories outlined and what happened in the collective action in dealing with a large retailer. Special attention will be placed on the potential and limitations of the farmer group. The role of the transaction costs associated with contractual uncertainty, which represent the costs of searching for information and in monitoring growers' performance, will also be examined.

Chapter Four: Case Study Methodology and Results

4.1 Introduction

As outlined in previous chapters, the purpose of this thesis is to investigate the factors that can potentially hamper farmers' participation in a new marketing organization and take advantage of the potential opportunities that collective action can provide. This chapter outlines the rationale for using a case study methodology to examine the propositions developed within the conceptual framework of this study. The purposes of this chapter are: 1) to examine the propositions listed in chapter three; 2) to explore the data to draw inferences regarding farmers' participation in a new marketing organization that can be used to build on the framework presented in chapter three. The case study research method was chosen as the most appropriate way to answer these research questions. This chapter provides a description of the case study research strategy and data included in this study. Prior to introducing the case, the methodology for the case study and key principles for successful case study research and their implementation in the thesis are discussed.

The case study methodology provides tools for the researcher to examine the propositions of this thesis. It is a form of qualitative descriptive research which can be used to analyze research questions in depth and it is used to look at individuals, a small group of participants, or a group as a whole. Qualitative research is a holistic approach, where individual cases can be considered an expression of a bigger reality (Richardson and Pierre, 2005). Researchers collect information about participants and direct observations of participants, interviews, reviews of written documents and tests. In accordance with pre-prepared questions, semi-structured interviews were conducted with the value chain specialist who deals with the growers and the wholesaler. The case study is presented in detail including the introduction of the organization, information about the industry the participants were involved in, and the marketing agreement with the buyer. Following the description of the case, a case study

analysis is discussed in the context of the economic models of contractual relationships and proposed challenges of contracting, drawing upon transaction cost economics and agency theory. Data collection, interviewee selection processes and analysis were carefully planned in order to facilitate the achievement of the objectives set out for the research. An overview of the stages of data collection, the geographical scope of the study, and the selection of the sample is provided. Both qualitative and quantitative data were collected. Qualitative data is interpreted and descriptively presented. Eleven growers involved in PFFC were surveyed for the case study analysis.

4.2 Case study research

Verschuren and Doorewaard (1999, p. 3) characterize seven types of research, i.e., theory-testing research, theory-developing research, problem-finding research, intervening-oriented research, design-oriented research, diagnostic research and evaluation research. Due to the fact that three propositions were developed from the theories regarding the new marketing organization and collective actions, the research is characterized as theory-testing research. The case study method is suitable for this investigation.

Miles and Huberman (1984), Voss et al. (2002) and Yin (1994, 2003) argue that case study research tries to understand the dynamics in present time and is appropriate to test and clarify existing theory. The researcher can select a number of case studies to challenge and examine a priori assumptions and theories. Moreover, the researcher chooses this strategy due to the fact that situational factors have a direct effect on the studied phenomenon (Denscombe, 2003). It is an appropriate research method to study how-type and why-type research questions about a contemporary set of events and also if the researcher is interested in extending control over behavioural events. “The case study, like the experiment, does not represent a “sample,” and the investigator’s goal is to expand and generalize theories (analytic generalization) and not to

enumerate frequencies (statistical generalization)" (Yin, 1994, p. 9, 10). It is also suitable for obtaining an integrated picture of a single social phenomena or a single unit of analysis, such as an organization. Denscombe (2003) explains that the case study method is not similar to statistically-based studies, which search for quantifiable data. He believes that the case study method can deal with a small number of observations. It also studies research questions as they naturally occur without controls and offers new variables and questions for further research (Denscombe, 2003). The case study methodology examines the interacting relationships of variables in order to provide a complete understanding of an event or situation as much as possible. Finally, another reason that a case study is appropriate to answering the proposed questions is the limited time and resources that are available for this type of research (Verschuren and Doorewaard, 1999).

Case study research can be classified into a single case study or multiple case studies. A single-case study is appropriate when only a single case can be feasibly studied and the case is special for some reason, such as the case is unique or has something special to reveal. When more than one case is available for research, a multiple-case study is useful. Multiple cases which can provide an experiment could be replicated to examine the validity of the conclusions and to strengthen the common themes that emerge.

Yin (1989: 29) identifies five components of a case study research design:

1) A study's questions;

2) Its propositions (hypotheses), if any;

3) Its unit of analysis;

4) The logic linking the data to the propositions; and

5) The criteria for interpreting findings.

The starting point for case research is the research questions which can lead both to theory testing and more importantly to theory development since it can guide the collection of data (Miles and Huberman, 1994). Case study methodology is able to combine various data collection methods such as participant observation, archives, document analysis, questionnaires, interviews, Delphi processes, and physical artefacts. However, they do not all need to be used in every case study (Yin, 1994). One of the most important sources of case study information is interviews (Yin 1994). Physical artefacts tend to be collected during the observation period. Archives and documentation are important for most case studies along with surveys and interviews (Yin 1994). Besides, participant and direct observations are often used when the topic of interest is ongoing and not an historical event (Yin 1994). Yin (1994) believes that the strength of the case study approach is in its ability to examine a "full variety of evidence – documents, artefacts, interviews, and observations" (Yin, 2003, p. 8). Moreover, the power of case study research is the ability to use multiple methods within the data-collection process depending on the circumstances (Denscombe, 2003). On the other hand, some challenges might occur in conducting case study research: it is time consuming and needs skilled interviewers since the results of a case study can have a very high impact.

The main research question explained in this research is "what determines growers' participation in the new organization?' or "why do growers enter the new agreement with The Grocery People (TGP)?". In other words, it is actually a 'why'-type question. This case study analyzes a single-case situation and the findings can be used to draw conclusions for similar scenarios. Determining why growers enter the new contract can assist in devising plans and strategies for organizations facing parallel situations. Interviews and a survey are appropriate means of collecting data to address the research question. With flexibility of questions and open-ended answers, semi-structured interviews provide an opportunity to gather qualitative and case-specific information that cannot be obtained by highly structured questionnaires. In

addition, the other reason this was appropriate is that there simply is not enough data for a statistical analysis, only a handful of growers and only examining one marketing channel.

4.3 Data and interviews

A survey/interview guide was designed to collect the relevant information. Accordingly, the survey design, sample population, administration, analysis and reporting all depend upon the objectives of the study (Fink, 2003). This study's objectives have been developed in earlier chapters and are based on the theoretical and conceptual frameworks examined above. This investigation brought understanding of the key concepts and relevant issues for the new marketing organization.

The data collection for the present study was carried out through distinct primary sources. Primary data collection through personal interviews which were undertaken with farmers forming the Prairie Fresh Food Corporation were an essential source of evidence and were a mixture of open-ended and focused interviews. The interview proved to be a key source of case study evidence. A structured interview asks specific questions to have a tight control over the answers and make it easy to analyze. In contrast, a semi-structured interview involves a list of questions along with open ended answers, so this allows representatives to elaborate on points of interests (Denscombe, 2003). In the current case study, a semi-structured interview was conducted to reveal the factors which influence the incentives of PFFC members in joining the organization. The interview (Appendix B) follows a set of questions to consider the organization's performance in the new agreement and also analyze the factors influencing the members' incentives to join or remain members of the marketing organization.

The early versions of the research design and the questionnaire guide were commented on by a value chain specialist[21]. This professional commented on the draft and based on the suggestions provided, the final interview template was prepared. The survey encompassed the factors that impede growers' participation in the organization such as transaction costs and collective action. Using participant growers enabled clarification of the motivations, benefits and key success factors. The aim of the survey was to provide data on the transaction costs faced by the growers, the constraints faced by the growers that might convince them to enter the contract, and key success factors for growers that have been able to participate. Participants were asked the same set of questions and were welcome to comment outside these specific questions. This interview involved an intensive discussion on the subject, while simultaneously keeping the study objectives in focus.

Each of the three propositions, as presented in chapter three, is tested by a set of questions. Some of them are open-ended questions which are expected to provide answers that can be used in the analysis of more than one proposition. The major problem with the data collection process was that some growers involved were not willing to release detailed information. A number of meetings, activities and conference calls during the same period were also attended.

The personal interviews were carried out with growers during the period July - September 2013. A total of 11 in-depth interviews were conducted with members that participated in the PFFC program. Data was analyzed using qualitative data analysis which involved the process of describing, classifying and connecting the situation within the answers as well as incorporating the comments made by the participants. Descriptive statistics are important to

[21] Bryan Kosteroski is the value chain manager at the Agriculture Council of Saskatchewan. He has helped 16 Saskatchewan vegetable growers to form the Prairie Fresh Food Corporation.

have a clear picture of the characteristics of the participants emerge. In this study, descriptive statistics such as median, standard deviation, percentages and frequency of occurrence were used to analyze the collected primary data.

Prior to conducting the personal interviews, approval from the University of Saskatchewan's Behavioural Ethics Committee was required. Approval of the study's procedures for data collection, storage, and use as well as guidelines for respecting interviewee's anonymity was granted on July 15 2013 and is included in Appendix A.

4.4 Prairie Fresh Food Corporation

The local production of vegetables in Saskatchewan is not sufficient to satisfy all the local demand and large retailers procure products, for the most part, from out of province even though many consumers prefer locally grown products. As mentioned, the Agriculture Council of Saskatchewan Inc. (ACS) is a member-based organization which endeavours to identify development challenges and opportunities common to the collaborating stakeholders, support and promote appropriate collaborative action, innovative approaches, options and partnerships for community development (The Agriculture Council of Saskatchewan Inc. Report, 2011).

One of the programs promoted by the ACS is called the Prairie Fresh Food Corporation (PFFC). PFFC was incorporated in April, 2013 after a group of 16 vegetable producers decided to pool resources to fill market opportunities within the retail sector. For this purpose, Saskatchewan is divided into five pick zones; Outlook, Lumsden, Yorkton, Kindersley and Saskatoon. The main purpose for establishing the organization was to help vegetable growers access large retail markets. Through the relationship that PFFC has with its buyer, The Grocery People (TGP), and their parent company Federated Coop Limited, the retailer has committed to promoting and developing the "Homegrown Saskatchewan" brand through flyers, television and social media. TGP provides PFFC with the required volumes and a guaranteed price well

before the planting season. This provides an opportunity for producers to expand and develop the infrastructure required such as vegetable storage facilities, so produce can be pooled. The group is looking at working together to fill the expected volumes and then expanding outside the province as they grow. They will do this by increasing the acres grown by members, and by actively seeking out new producers and buyers. PFFC provides vegetables under the "Homegrown Saskatchewan" brand to the TGP warehouse for distribution to almost 75 Coop stores in Saskatchewan. The Brand includes full nutritional information and is pitched as a premium product from a quality perspective. The "Homegrown Saskatchewan" brand focuses on consumers in Saskatchewan wishing to buy a locally produced quality product.

Members of the new organization are informed of delivery dates; the vegetables are sorted, washed, graded, and bagged on their sites and transported by means of their own vehicles under the supervision of PFFC to TGP. The organization itself has no machinery or land capacity connected with production. All members have their own land and assets for farming. The main aim of the corporation is to co-ordinate selling activities. In line with this main aim the corporation is endeavoring to establish secure markets for the long term. Members of the organization will develop strategies to ensure all requirements are met; packaging and transportation needs are established and met within each pick zone.

All members of the organization maintain levels of compliance within the Canadian Food Inspection Agency grading program and also in compliance with the Retailer, Foodservice and Ingredient grading compliance requirements. Vegetables subject to these quality measurement requirements are expected to be of higher quality than non-graded vegetables. If noncompliance occurs the producer will jeopardize its member agreement within the organization. According to the organization rules, for one to become a member of the corporation, he or she must (i) be a member of the Saskatchewan Vegetable Growers

Association[22] (SVGA), (ii) must pay up membership in accordance with the by-laws, (iii) must be committed to the organization, (iv) have CanadaGap Certification. CanadaGAP is a food safety program to help implement and maintain effective operations of production, storage, and packing of fresh fruits and vegetables. It has been developed by the horticultural industry and Canadian government officials. It consists of national food safety standards and a certification system. Producers, storage intermediaries, and packers are all interested in the certification system since they need to show to their clients that they are implementing food safety programs by applying the seven principles of the internationally-recognized HACCP (Hazard Analysis and Critical Control Point) approach (CANADAGAP, 2013).

A member is also required to pay a shareholder fee. The shareholder fees are a onetime payment at the time of signing the member agreement. The PFFC develops a buyout clause for good standing members but they cannot go into direct competition with the established markets held by PFFC for a period of 36 months after withdrawing from the corporation.

The organization has a constitution (or by-laws) which define the duties and responsibilities of all the office bearers. Each member must observe and respect the by-laws of the organization since its constitution acts as a guide for the corporation to operate as a business organization. The organization stipulates a maximum of seven members to serve as a board of directors. All directors have to be elected from the organization's membership and they are responsible for controlling the business. Major decisions regarding the implementation of new businesses are made by the board of directors. The management of the organization includes the chairperson, two vice chairpersons, secretary, treasurer and two directors. The organization

[22] The SVGA is a member of the Canadian Horticulture Council (CHC). The SVGA represents the interests of the vegetable industry in Saskatchewan. It also has taken the lead in introducing producers to the Canada Gap - On Farm Food Safety program in Saskatchewan (SVGA, 2013).

holds an annual general meeting where policy matters and other important issues are discussed (the PFFC report, 2013).

The members of the organization work in collaboration in developing consistent production programs throughout the year for current grown vegetables in the province within the three category markets – Retail-Canadian Foodservice-Ingredient industry. For example, if two members grow onions then they would be determined as particular producers on onion production over the years due to their investment in equipment, etc. The organization tries to develop strategies of growth and sustaining existing and attraction of new clients in the market. It will then target vegetable producers within the established pick zones to increase the capacities and capabilities of the organization. Its growth will be monitored each year by board members of the organization under supervision of the value chain specialist. Forward planning of required crop production may result in a need for new members to join the organization (Value Chain Specialist interview, 2013).

All members of the corporation have equal rights and privileges as established within the member based corporation - one vote for every member and each share will represent a company and or family group. This will be listed within the member's agreement with the organization (the PFFC report, 2013). The organization develops the acre requirements of each vegetable and looks at the established pick zones for the best solutions for growing, packing and transportation. The established pick zones will have put in place a program for growing vegetables and the required equipment (such as storage rooms and/or semi for transportation) within the zones. It will dictate the best practices (combination of product and specific production process).

The organization has developed a long term strategy for succession planning as it gains members and increases sales. Therefore, after the value chain specialist who is in charge of this

project leaves at the start of 2016, the management board of the organization will be expected to negotiate prices, volumes, delivery dates, etc. All planning for the next growing season will be finalized no later than January 1st of the growing year which provides the overall needs assessment and directive to growers regarding who will grow what, and what quantity, how it will be packaged, the specified product requirements as per the Canadian Food Inspection Grading Compliances, and the respective program compliance initiatives. The board members and TGP negotiate the contract before the planting season and set the price and volume needed. Then discussions will move forward on growth strategies and where the focus should be. Discussions will be initiated one year in advance for any new vendors, this provides the time needed to target new growers to meet the new expectations of volumes and also continuous dialogue with the existing members will provide a picture of growth potential.

All orders of all categories will be shipped accordingly using the requested methods and arrival dates and will meet all requested volume requirements. The organization also pre-sets all orders with scheduled delivery dates which provides for better planning. The process for orders is that TGP places the order (usually three days to a week ahead). PFFC delivers orders to the warehouse and TGP mails a cheque to PFFC. The value chain specialist picks up the mail and deposits the cheques, and then the treasurer issues a payment to the producer. The payment is less a 3.5% hold back which is used for operating and to save so that PFFC can hire a manager in a year or two (the PFFC report, 2013).

The members of PFFC will be in continuous consultations with the board providing weekly updates on the growth patterns within their operations, any deviations of expected yields and any other issues that may arise to handle any surprise for both the group members and TGP. This communication method allows the strategic planning process to move forward and prepare members to meet all the project's required expectations. Each member's products have their

own specific barcodes on their bags. The barcode on the package helps locate the grower and the field where the vegetable was grown and ensures traceability which enables TGP to identify the source of product. TGP have requested direct consultations with producers that provide them the security of fulfilled orders. If there are difficulties in meeting expectations, the retailer will source from alternate suppliers. Bar codes allow TGP to distinguish which member's vegetables were sold to a specific market. Hence, the producer can be tracked down if any problem arises. For this purpose, a pre-agreement which develops the understanding of noncompliance in any manner is signed and witnessed if a noncompliance situation arises with a producer, hence, TGP can take immediate actions towards the grower, which could mean immediate suspension of any activities.

4.4.1 Plans for future growth

The establishment of PFFC could become a starting point for growth of the Saskatchewan vegetable industry. PFFC is planning to attract more vegetable growers to join the group since benefits may increase through exploiting economies of scale and reducing transaction costs. PFFC needs to ensure members that their needs will be met and the organization has established growth strategies to ensure the consistency of the final product.

The first year's (2013) focus was on the 75 Coop retail stores in Saskatchewan. Besides "Home Grown Saskatchewan", the "Canadian Prairie Grown" brand, although primarily developed to market products outside the province will also be used in provincial sales. Together, the two brands are expected to command a larger percentage of shelf space than just one brand. The tagline of the "Home Grown" Saskatchewan label is "taste the difference". The PFFC is focused on choosing and standardizing good tasting varieties of produce to meet this claim. The "Home Grown Saskatchewan" and "Prairie Grown" brands have been created and

will be promoted to increase market access as the company grows. As the brand grows, fruit and greenhouse grown fruit and vegetables will be added.

4.5 Results

The collected data was managed and gradually condensed into tables along with informative discussion. The median, range and standard deviation are used to describe the data gathered by the survey. In order to understand the socioeconomic conditions of the participant sample respondents, a descriptive analysis is provided and discussed below.

4.5.1 Characteristics of respondents

In this section, the characteristics of the respondents who participated in PFFC are presented and discussed. Characteristics of farmers may be general (e.g. age) or specific to the households (e.g. size and composition). The average years of experience in growing vegetables was 15, with a minimum of 2 and a maximum of 30 years. This shows that PFFC's members are quite experienced. In general, respondents to this survey are small scale growers in terms of land and area used to produce vegetables (See Table 4.1).

Table 4.1 Farm and age characteristics of respondents' growers

Variable	N	Mean	Std. Dev.	Median
Farming years	11	15	7.48	16
Total farm area under vegetable production (ac)	11	27.64	13.05	25
Irrigated land (ac)	11	17.08	14.21	11

Growers are not specialized and have business interests other than vegetables. Most of them grow field crops (such as grain and canola). The Hutterite Colonies that are members are involved in various other farm business enterprises (i.e. cattle, chicken, and crops). PFFC could provide an incentive for members to invest in expanding their vegetable growing. Table 4.1

shows the average size of respondents' vegetable production in acres which ranged from 7 to 42 acres, with an average of 27.64 acres and a median of 25 acres. It could be expected that those farmers who have been growing vegetables for many years are the ones having larger operations and greater knowledge and experience. All members have access to key assets such as irrigation. Table 4.1 also illustrates the use of irrigation systems. Almost all of the farmers interviewed (90%) use irrigation. As an illustration, 55 percent of growers own land area of which 80% of their area is planted under irrigation and the rest of the members are growing vegetables on under 50% irrigated land.

Table 4.2 summarizes the main vegetables grown and their planted areas. The range of vegetables produced is quite diverse. The share in acres is slightly different. It shows that most members produce a wide range of vegetables.

Table 4.2 Proportion of vegetables sold through the new organization in 2013

Growing vegetables	**Percentage of growers**	**Acres (under vegetable)**
Sweet Corn	82	21
Potato*	-	0
Green beans	100	3
Radishes	82	5
Peas*	-	0
Carrots	63	24
Beets	73	7
Onion	82	40 (but got hailed out)
Garlic	73	8
Cabbage*	-	0
Asparagus*	-	0
Lettuce*	-	0
Pumpkin*	-	0
Cauliflower	65	5
Zucchini	60	2

***** Zero shows that the vegetable has been planted by growers; but sold in the market outside of this organization contract.

Table 4.3 Increased acres of vegetables planted by the members of PFFC from 2012 to 2013

Area in Saskatchewan	2013
Farm 1	3
Farm 2	5
Farm 3	15
Farm 4	6
Farm 5	0
Farm 6	2
Farm 7	3
Farm 8	1
Farm 9	1
Farm 10	3
Farm 11	30

As seen in Table 4.3, compared to the prior growing year, growers have been able to increase the size of farms under vegetable production, so, they could produce higher volumes needed by TGP according to the agreement negotiated. Even though the market share of PFFC in the whole vegetable market is still quite small, members expect that they would be able to continue increasing the volume sold due to the increasing market demand from local and out of province retail markets.

Next, marketing channels and activities beyond growing were investigated. Farmers are quite similar in many aspects; they mainly sell to PFFC. Table 4.4 shows which marketing channels for fresh vegetables are used in the region. Table 4.4 depicts the different marketing systems used by individual vegetable growers. Respondents were able to rank their channels and give more than one answer if they use more than one marketing channel. Regardless of the size category, most of the vegetable growers' production have been marketed through farmers' markets, 49.50%, followed by PFFC (46.50%) and others (4%) respectively. Only about 1 percent of the total respondents (one grower) tried to go into another retail market. It is important to note that most of the respondents practice a combination of two systems and that

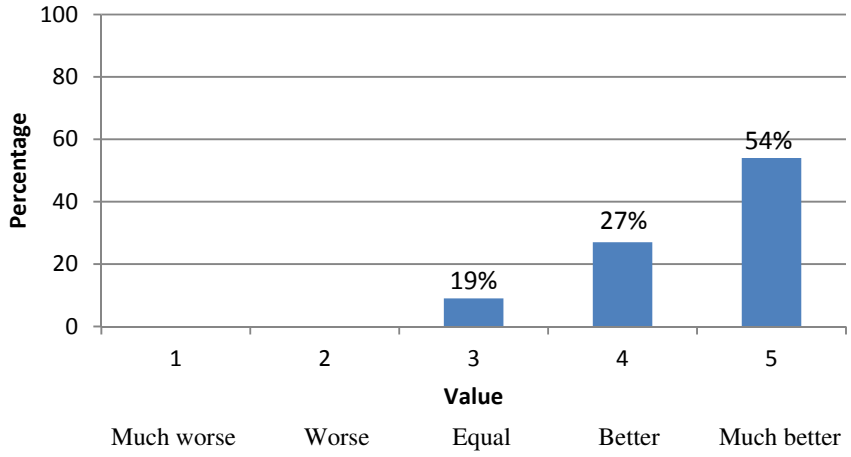
the majority of those that do so prefer to combine PFFC and farmers' markets. Farmers' markets have become a popular community marketplace in the province, as farmers are looking to direct marketing channels to remain competitive and as consumer demand rises in many locales.

Table 4.4 Main market channel in 2013

	Frequency	**Minimum (%)**	**Maximum (%)**	**Average (%)**
Road side stand	1	0	25	2
Farmers' markets	11	10	90	49.5
U-pick operations	0	0	0	0
PFFC	11	10	70	46.5
Other	1	0	40	2

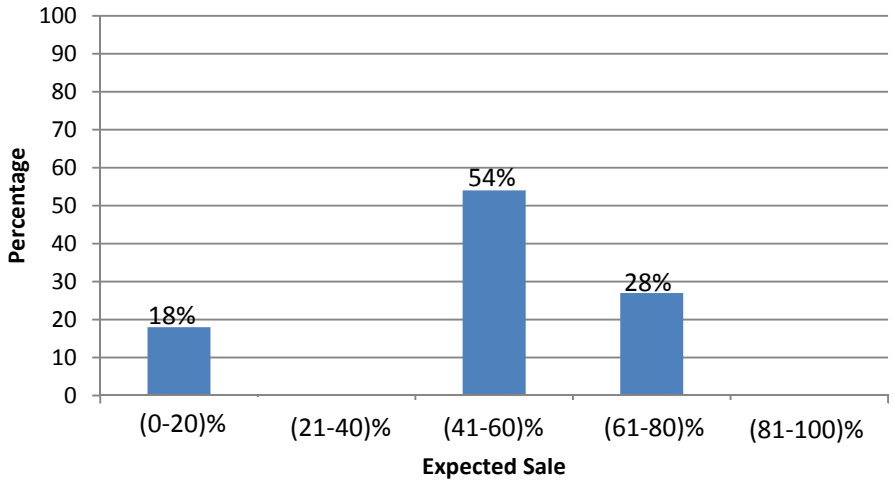
Regarding the opinion of farmers about the performance of their new organization compared to their past marketing practices, Figure 4.1 shows that there is a significant difference by main market channel. When asked whether respondents had achieved their objectives, a majority of the members reported that they had partly achieved them, while those that had not achieved any were working towards those goals despite constraints. Overall, about 81 percent of farmers consider that PFFC is performing better or much better than the traditional marketing channels before joining, and about 19 percent of farmers consider the organization performance equal to their past experience (Fig 4.1).

Figure 4.1 Comparing the Prairie Fresh Corporation to past marketing practices without PFFC



The interviewees were asked about what percentage of their sales they are willing to sell through the PFFC in question 9 on the survey. Figure 4.2 indicates that participants have decided to grow more for PFFC in the next year. Growers intend to reduce the proportion sold at farmers' market and to other markets to increase the proportion sold in PFFC. For instance, 54 percent of growers were willing to sell 41-60% of their sales through PFFC in the near future.

Figure 4.2 Expected average sales through Prairie Fresh Food Corporation



Three questions were asked to determine the overall level of investment in the past and for the future, (Figure 4.3 and Figure 4.4). The questions require the interviewee to evaluate the investment. All answers are scaled from 1 to 6 in ascending order: 1 refers to no specific investment and 6 the highest level of investment ($100,001 and over). By summarizing the answers, a measure of the level of the firm's investment specific to the PFFC organization was obtained. Generally, any producer prefers to sell the products into that market which does not require significant investments. However, for participating in the PFFC specific assets such as storage rooms, transportation vehicles are important. In addition, these assets are relatively expensive and the growers individually build storage facilities on their farms.

In addition, members were asked to rate the importance of membership in the PFFC. They see the membership fee as an investment.

Figure 4.3 Investment over the past 24 months

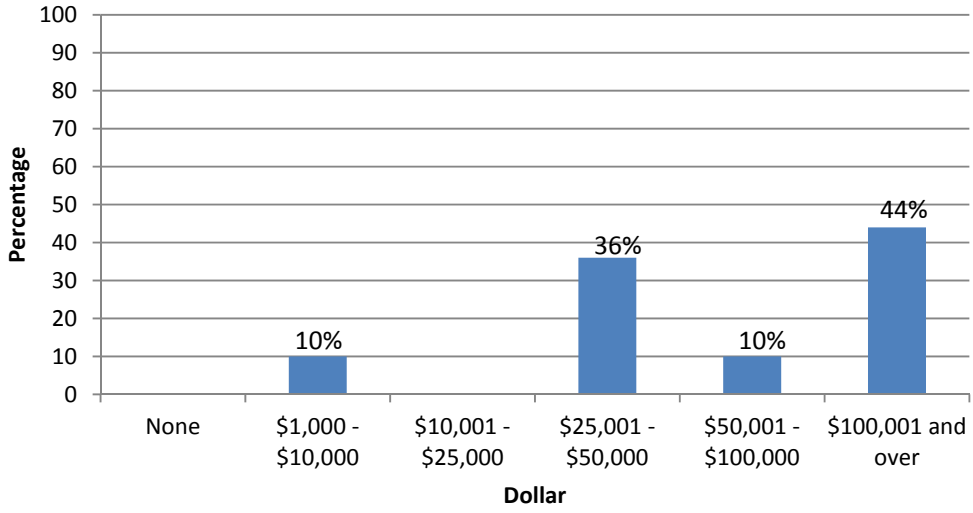
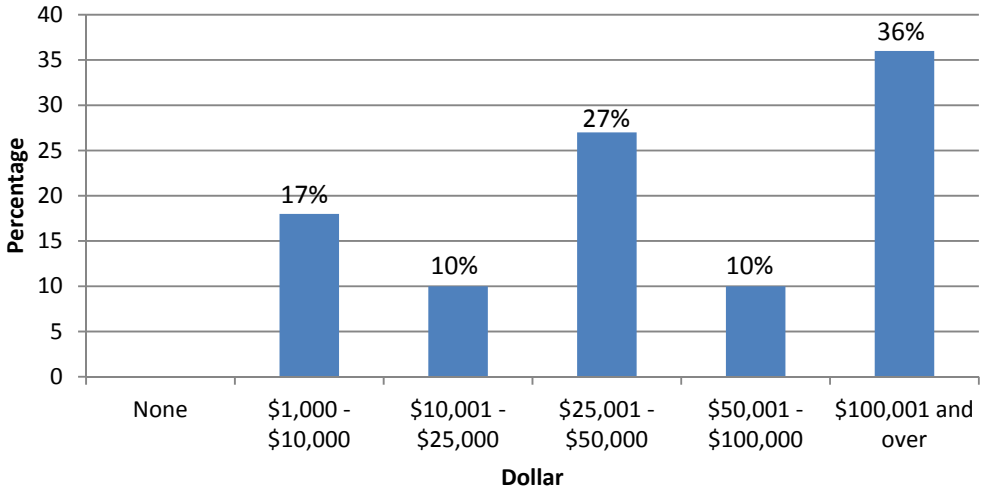


Figure 4.4 Future investment over the next 1-3 years



Members of the corporation participate in the organization by: supplying vegetables, attending meetings and taking part in the decision making through election of leaders, and attend events organized by the PFFC management or other officials (for example SVGA[23]). Growers were asked about the reasons for joining PFFC in question 13. In order to explore important factors determining the choice of PFFC, the interviewees were asked to respond according to a five-point Likert scale where "1" accounted for “unimportant” and "5" for “highly important”. The Likert scale determines the intensity of feeling that respondents have about their attitudes (Albaum, 1997). Fulton and Larson (2009) use a Likert scale to elicit the perceptions of co-operative members and to investigate the factors influencing members’ commitment to co-operatives.

In the questionnaire the potential factors can be classified into four major categories which are: (i) mechanism of payment and fixing the price with the buyer which is associated with negotiation costs along with uncertainty due to the fact that market price could be higher or lower than their negotiating price at that moment. In fact, when growers join this program, it means that a fixed price is presumably preferred by them. (ii) flexibility and trust. (iii) food

[23] Saskatchewan Vegetable Growers Association

safety and grading compliance requirement; grading compliance is associated with information and monitoring costs and also involves uncertainty. However, grading might not be very favorable to all members because of their particular conditions, but, they are all aware that selling graded products would be preferred. And (iv) certainty of quantity level; the organization would help members to sell their vegetables in a fixed volume, but on the other hand, joining the organization forces them to incur costs of coordination and in monitoring their performances. Moreover, the membership fee and investments in specific assets, as an entry cost, is associated with uncertainty which ties to market uncertainties.

Table 4.5 reports the importance attached by growers to various reasons for marketing through PFFC.

Table 4.5 Importance level of the factors to market through PFFC

Factor	Unimportant (1)	Less important (2)	Neutral (3)	Important (4)	Highly important (5)	Rating Average	Response count
	Percentage						
Food safety and grading compliance requirement	0	0	9% (1)	36% (4)	55% (6)	4.7	11
Flexibility and Trust	0	0	0	54.5.5% (6)	45.5% (5)	4.45	11
Access to price information	0	0	9% (1)	45.5% (5)	45.5% (5)	4.36	11
Payment mechanism (Speed of Payment)	0	0	9% (1)	45.5% (5)	45.5% (5)	4.36	11
Production requirement (Input and finance)	0	0	9% (1)	64% (7)	27% (3)	4.18	11
Quantity of vegetable produced	0	0	36% (4)	36% (4)	27% (3)	3.91	11
Type of vegetable produced	0	0	36% (4)	36% (4)	27% (3)	3.91	11

The most important factor for selling through PFFC is food safety requirement (quality), access to price information, payment mechanism, production requirement, type of vegetable and grading compliance requirements respectively. In general, all factors in the context of production decisions regarding the organization status in the supply chain are important to growers and influence their choice of a new market channel. They reported that their decisions were affected by all factors/criteria when deciding to join the PFFC. Food safety, along with grading compliance and trust, are important factors for all producers in choosing the new marketing channel relative to the others. The high rating of food safety indicates that the interviewees are aware of its importance in accessing a higher market share. Respondents suggested that it was not easy for individuals to supply their vegetables to big retailers instead of farmers' market on their own, so they had to join the organization so that they could access a market. As mentioned in the literature, trust is an important factor for becoming involved in new collective action, moreover, it is also critical in the decision and plays a role in most outsourcing decisions. Hence, we asked about trust in a separate question which is described below.

A contractual relationship represents trust in the contracting party (management of TGP). As discussed, trust is always an important factor involved in a party's choice of transaction partner. Moreover, trust is the fundamental base for the relationship in the vegetable industry because of the physical constraints on production and the frequency of interaction. The trust could be built upon sustainable relationships between TGP and PFFC. It is expected that as trust increases, the member commitments increase and this has a positive effect on the efficiencies achieved and the program's horizon. Having higher trust in the buyer increases the grower's willingness to participate in a new collective action. In the presence of trust, there is more reliance on quality due to the fact that the buyer decides if a product meets the standards or not and members would be paid according to the quality of products. We asked growers to

represent their trust level according to the level of satisfaction that they have towards the wholesaler. Farmers used a five-point scale to rate their answer to the following question about trust: "how satisfied are you with the management team of The Grocery People." The choices were very dissatisfied, dissatisfied, neutral, satisfied and very satisfied (see Appendix B). All interviewed PFFC members were very satisfied with the management team of TGP. All interviewees believe that TGP has been committed to the new agreement with growers.

In question 14, growers were asked to rate the benefits of their membership in the new organization. The benefits mentioned include: networking among members, pooling resources, increasing their business knowledge, increasing their information around the Canadian food retailing industry, obtaining finance and learning more about cost issues.

Each choice had been described during the interview, for instance, economic development indicates that growers would be able to achieve market access and upgrade their knowledge of production practices and their farming capabilities. Moreover, it is assumed that this development could contribute to poverty reduction, resource pooling such as using transportation and/or storage and cooling facilities together, obtaining finance, networking among themselves, providing knowledge of business and the Canadian grocery retail and food service industry for the members. The most important benefit from PFFC, listed by 11 respondents, is receiving more financing in the future. PFFC would support the producers taking loans by explaining to the lender how the PFFC works and how TGP commits to prices and volumes in advance and this is a value chain with all parties having a vested interest in the success of the venture. In the view point of lenders, they need security for giving loans and they might ask for land as security in the case of asset specific production. In other words, if the loan is used in businesses with higher asset specific investments, they may charge a higher interest rate or take land as security. It was revealed that growers participating in PFFC gained

some benefits by working with other farmers throughout the province (networking among members). They believed that working with other growers could be useful since it teaches lessons and experiences which help them to improve their vegetable growing activities. The new organization can make markets more secure and some advantages to growers like reducing transaction costs and market uncertainties, and helping them to obtain credit. These will be discussed below.

Table 4.6 Benefits of membership in PFFC

The appropriate Value of rating	Strongly disagree (1)	Moderately disagree (2)	Neutral (3)	Moderately agree (4)	Strongly agree (5)	Rating Average	Response count
Obtaining financing	0	0	(5)	(5)	(1)	3.64	11
Economic development	0	(1)	(6)	(3)	(1)	3.36	11
Increasing knowledge of the Canadian grocery retail industry	0	(4)	(2)	(4)	(1)	3.2	11
Resources pooling	0	(3)	(5)	(2)	(1)	3.1	11
Better knowledge of the industry costing	(1)	(1)	(6)	(2)	(1)	3.1	11
Networking among members	0	(4)	(4)	(2)	(1)	3	11
Increasing business knowledge	0	(4)	(4)	(2)	(1)	3	11
Increasing knowledge of the Canadian food service industry	0	(5)	(4)	(1)	(1)	2.82	11

The survey identified six major factors which have contributed to challenges within PFFC that affect its marketing activity. The respondent's opinion on the challenges of marketing was categorized as of very low importance, low, moderate, high and very high importance with a value of 1 to 5 respectively (Table 4.7). These challenges include; (i) shortage of resources such as access to land and equipment, (ii) shortage of marketing infrastructures (indicated as

market access) and (iii) production challenges such as technology and capacity (indicated as Technology and Capacity) and (iv) lack of professional staff/labour for farm business besides poor management by board of directors. They believed that they will face some challenges including structure, size, financing, and operations in business through PFFC.

Table 4.7 Challenges for future growth

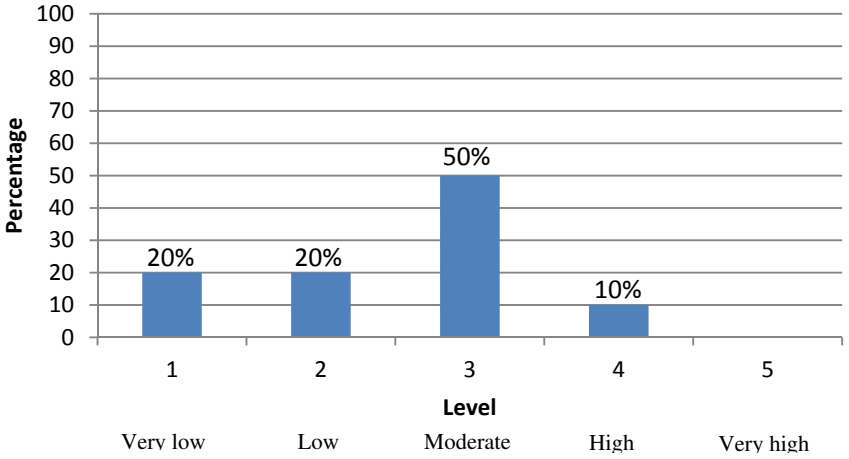
	Very low importance (1)	Low importance (2)	Moderate importance (3)	High importance (4)	Very high importance (5)	Rating Average	Response count
Capacity (structure)	0	(1)	(7)	(2)	(1)	3.27	11
Land (size)	0	(1)	(7)	(3)	0	3.18	11
Equipment (operation)	0	(4)	(5)	(2)	0	2.82	11
Market access	0	(1)	(8)	(2)	0	2.82	11
Technology	0	(4)	(5)	(2)	0	2.82	11
Labour/Staff (operation)	0	(4)	(6)	(1)	0	2.73	11

Interviews with members reveal that growers' concerns regarding possible challenges to their new marketing channel include: production capacity, available land, equipment, market access and technology. In addition, finding and keeping labour was reported to be a major challenge for members. Members' comments indicated that even when the retailer buys the vegetables, the delay in paying is a slight concern since they rely on product sales as an important source of income. However, it should be noted that at the time of the survey (July to September) growers had not been paid for their products yet (payment is done by the end of September to middle of October), and it might have been expected that they would have some concerns given it is a new arrangement.

Being a member of an organization requires effective communication with the Board of Directors and other members. This relationship requires information regarding the corporation's policies, finance, and operations, along with members' opinions and concerns. Figure 4.5 shows the difficulty level (in ascending order) for members to access information through the new organization. All members including the Board of Directors plays a role in this information flow through the operation. Respondents rated the information (e.g. about characteristics of products' demand in the market, grading compliances, timing, price, market opportunities etc.) provided by the organization at a moderate level to achieve the necessary market information.

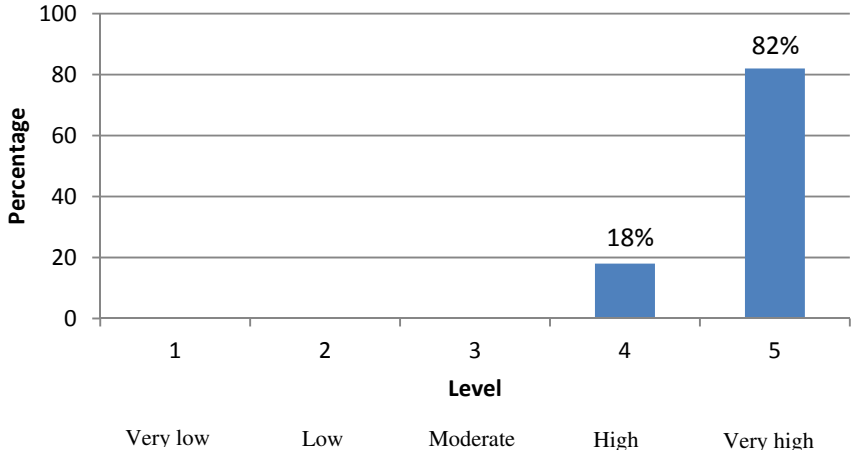
As mentioned in the theoretical chapter, information costs and asymmetries and also the potential for high transaction costs might lead to contractual uncertainty, which is relevant to the negotiation of contracts between PFFC and TGP. Comparing new collective action to traditional markets, communication was open between growers on the one hand and the consumers in traditional markets on the other hand, and growers could easily discuss issues with the consumers in traditional markets. After the contract, the new party in the supply chain has increased the distance between individual growers and final consumers. Growers believe that when they trade vegetables with TGP, there exists some incomplete information which could be a challenge and prevent them from better interaction with TGP. For example, growers have limited information about the final retail price of fresh vegetables.

Figure 4.5 Difficulty in accessing information



The remainder of the questionnaire related to the activities required to comply with the CanadaGAP and retailer quality requirements. All respondents had already qualified for CanadaGAP certification. They ranked CanadaGAP compliance between highly important and very highly important to them. Also, both quality compliances and food safety certificates are important for farmers since it is associated with quality issues, as shown in Figure 4.6. It is highly important that all the vegetables are in compliance. It is clear that survey respondents really care about their food safety. In fact, the majority of vegetables growers perceived that consumers give considerable importance to buying high quality vegetables in terms of variety, size, color, and free of pests and diseases. Hence, this perception leads to efforts to improve their product safety.

Figure 4.6 Confidence to meet the Canada GAP and TGP grading specifications



When growers join a new collective action, which requires producing high quality products for high value markets, this would put pressure on growers to take more care and to utilize expertise in production. This is particularly the case for perishable products, which carry a higher risk and require investments to maintain quality (Narrod et al., 2009).

As quality is the major concern when choosing a supplier, the initial objective is to enforce the grading regulations and thereby enhance consumer satisfaction. The required grading compliances in the agreement are reflected through a series of grades and standards related with quality. This grading compliance reduces costs of acquiring information about product quality for TGP as the buyer, and hence, final consumers. On the side of the seller, however, it causes products to become differentiated and supplier's gains from producing a higher quality would rise. Hence, the retailer imposes quality requirements on fresh products. Therefore, producing high quality vegetables according to specific requirements is a key element to participate in PFFC and those growers who have poor information about compliance or have a problem in implementing the standards, would have less chance of participating in PFFC. However, it imposes extra costs of product testing and labeling on growers. The importance of grading compliance is greater in the earlier stages of establishment since parties know each

other less and there is more private information about them. Regarding the importance of grading compliance for perishable products, interviewees were asked in questions 18 and 19 (as shown in Figure 4.7 and 4.8) about the importance of the TGP compliance program to their business. Growers showed a high degree of confidence in their abilities to meet the retailer grading specification as a key element for participation in the contract. However, they all mentioned that meeting the grading requirements (producing high enough quality) is always an important constraint determining participation level in the agreement. Farmers believe that a major percentage of their product can meet the grading standard under the new marketing contract.

Figure 4.7 Importance of compliance with Canadian grading standards

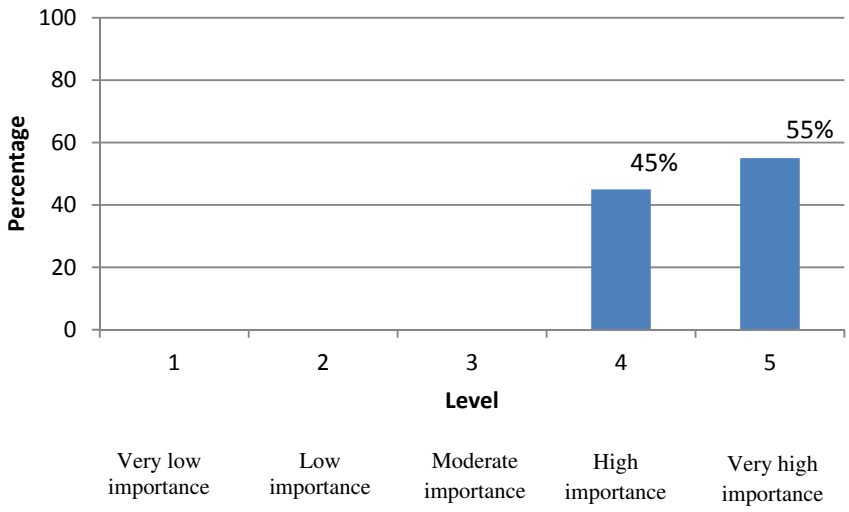
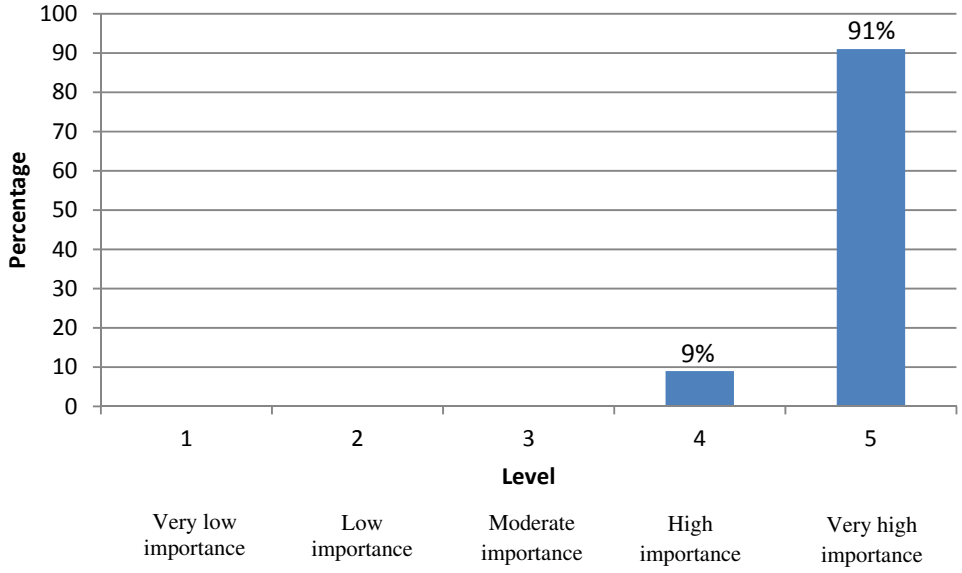


Figure 4.8 Importance of meeting TGP compliance standards



The growers were also asked about how they assess working with the external value chain specialist (see Figure 4.9 and 4.10). They ranked it high and very high. The respondents believed that they learned about new marketing system requirements and the specialist helped them to choose collective action, which required a new way of thinking. The specialist offered them opportunities for marketing and upgrading, and members have gained knowledge about how to sell their products in more vertically-coordinated markets instead of farmers' markets (spot markets).

Figure 4.9 Gained knowledge from the value chain specialist

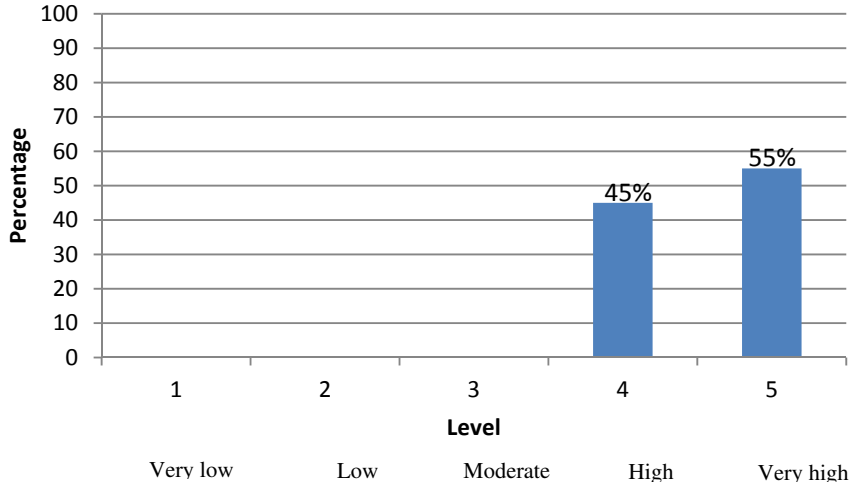
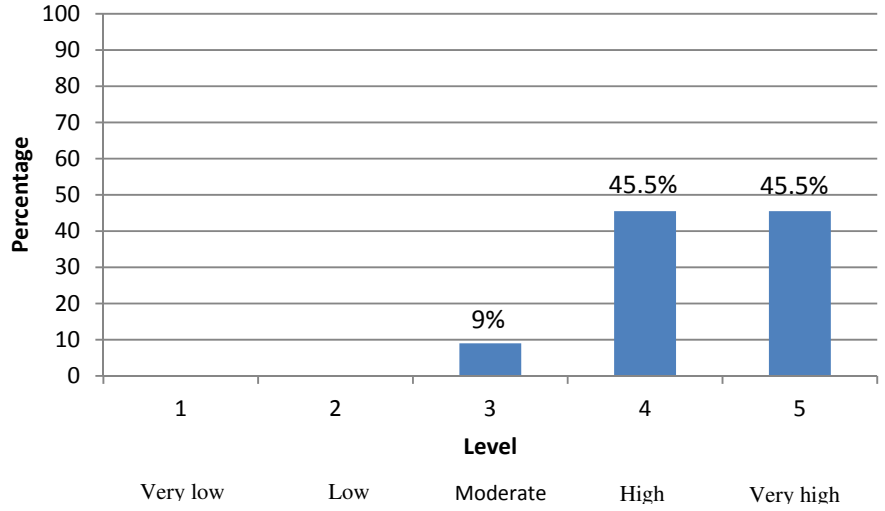
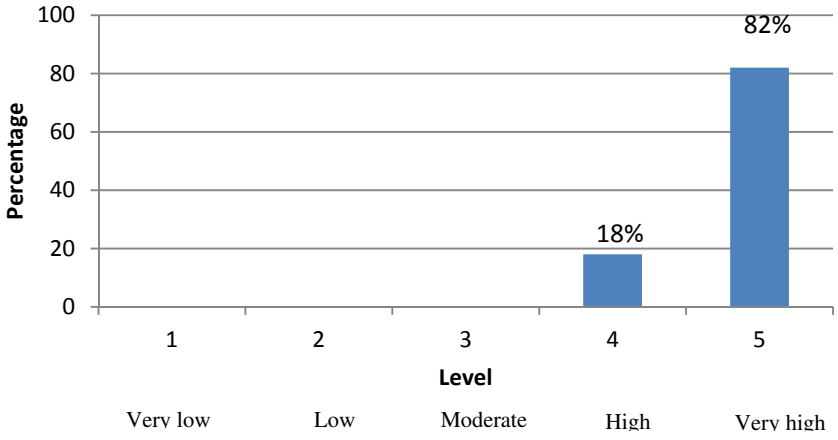


Figure 4.10 Services of the value chain specialist



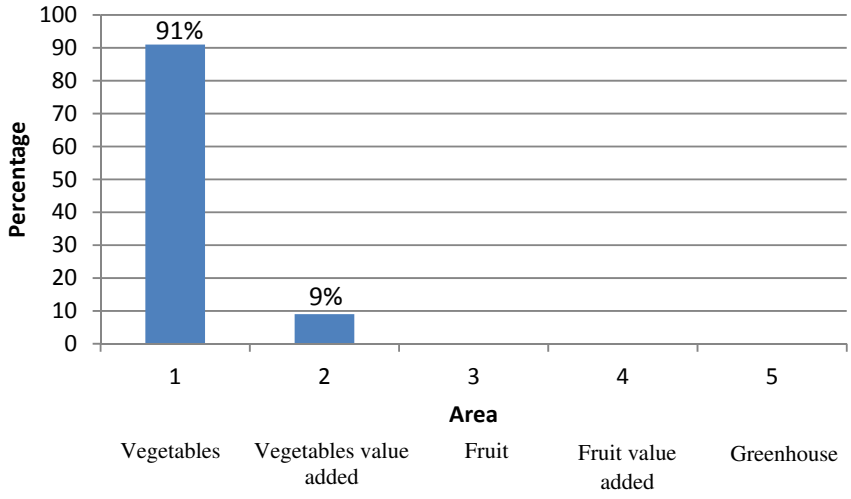
PFFC's competitors could use improved technology, reduce price, and/or increase quality thereby gaining higher returns on their products. The competitiveness of PFFC is influenced by a number of factors i.e. the characteristics of its competitors (including other vegetable producers or brand names) and corresponding price they offer, as well as the transaction costs and benefits arising from the organization. The interviewees were asked; "How important is it to your business to follow your competitor's marketing strategies?". Figure 4.11 shows they believed that it is important and very important to keep their eyes on their competition.

Figure 4.11 Importance of following the competitors' strategies



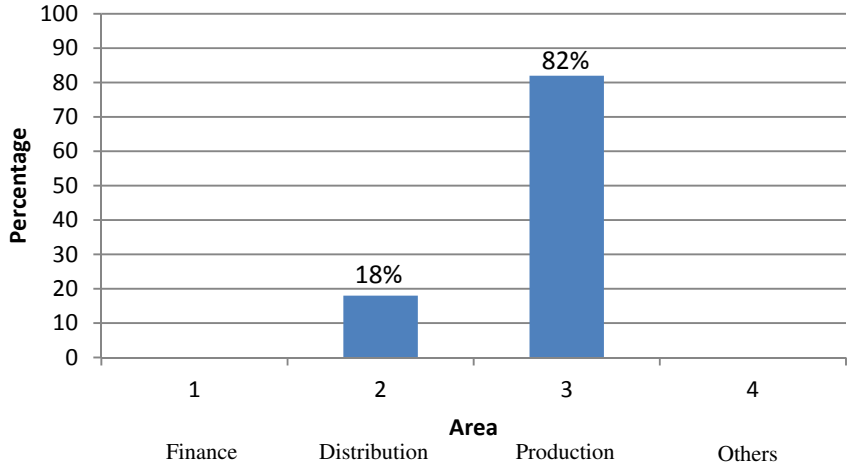
Also, PFFC participants were concerned about the organization and policies of TGP regarding future payment and growth. In order of importance, the PFFC members aspire to participate in the marketing of vegetables and value added processing of vegetables. They were asked to rank different areas of future growth in question 24 (Figure 4.12). Respondents generally expected that PFFC's market share will increase by expanding into other related activities such as growing other vegetables and value added products and to continue growth in the vegetable industry during the next few years. The results show that the growers intend to diversify more into linked activities where they have experience and skills.

Figure 4.12 The future growth areas within the Prairie Fresh Corporation



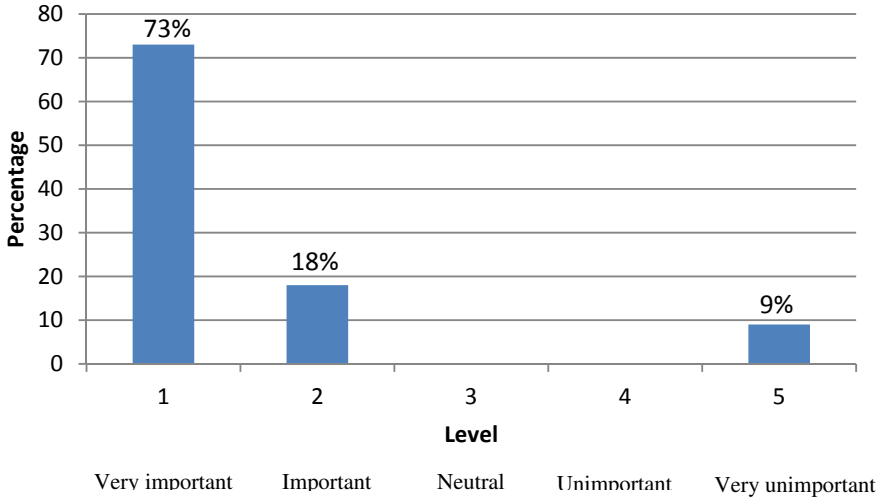
About 82 percent of growers remarked that they need to receive future support from PFFC in different areas of their production of vegetables. They refer to production and distribution in terms of assets and technologies in addition to crop insurance which could improve their supply and quality and reduce related risk and uncertainty. That is to say, the growers want to see that TGP is seeking ways to grow this business and the return on members' investments.

Figure 4.13 Required area for support in the future



In general, in question 26 the growers value PFFC as important for selling their products in the future, as shown in Figure 4.14. They believe that this new marketing organization will collect and sell produce for better returns than they would be able to get directly from customers. However, some members still market a portion of their produce on their own in farmers' markets but they did not clearly reveal the portions.

Figure 4.14 Importance of the PFFC in the future



4.6 Discussion

The theoretical framework shows how collective action can overcome a particular form of the market failure problem and it could increase the returns to its members. The study used a survey of the organization's members to explore the proposition that collective action has a positive effect on the members. The results section of this study begins with an overview of the province and an explanation of the new marketing organization.

In Saskatchewan, almost 90 percent of all fresh vegetables consumed have been imported to the province. As mentioned in the first chapter, vegetable growers in the province are looking for new marketing channels to sell their fresh products. The traditional markets for fresh vegetables in the province are characterized by imperfect (monopolistic) competition which means the producers individually sell differentiated vegetables. Not surprisingly, due to their low market share, they are not able to deal individually with large retailers and influence the negotiation process (including the price that is offered to them). Also, the large retailers are usually accused of using their market power to lower producer prices. These traditional marketing chains such as farmers' markets in the province suffer from issues such as a shortage of storage space, selling products to a small segment of consumers, etc. Moreover, changing market conditions making the market more competitive for fresh vegetables has made farmers' markets into a limited marketing channel. On the other hand, individual producers do not have enough information about the market (e.g. about prices) and they have very limited bargaining power. Hence, it was felt by ACS that there was a real need to create countervailing power and help growers with information and to strengthen their negotiation power. Therefore, some growers decided to integrate into wholesaling in an attempt to overcome marketing difficulties and access additional consumers.

The theoretical part of the thesis reviews three distinct research theories: Transaction Cost Economics, Agency Theory and Monopolistic Competition. The case study portion of the thesis provides details on PFFC and its agreement with TGP using a case study approach.

With respect to the first set of theories, the theories around transaction cost and uncertainty are built into Proposition 1 "I*n PFFC, if the members are expected to face lower contractual uncertainty, then, the greater their participating in the collective action and also the higher their future investments*". Principal-agent theory and the role of asymmetric information were embodied in Proposition 2 "*There is always some different level of information in terms of quality and effort in the marketplace which could mean a higher degree of information asymmetry between the parties and this will affect the level of trust among parties and potential for adverse selection and moral hazard problems*". The monopolistic competition theory lead to Proposition 3 "*Marketing fresh vegetables through new collective action is more economically sustainable than selling in traditional markets*". To assess these propositions a case study approach was used which is discussed below. The theoretical models are aimed at examining the main three propositions regarding collective action presented in section 3.5. Transaction Cost Economics is used to determine the effects of transaction costs on the grower's participation in PFFC. The first proposition stated: it is expected that lower contractual uncertainty in the PFFC faced by members results in higher participation in this collective action and higher future investments.

Agency theory is applied to assess the adverse selection and moral hazard problems which are associated with Proposition Two. This proposition suggests that higher asymmetric information leads to a lower level of trust among parties and the potential for adverse selection and moral hazard. The third proposition postulates that marketing fresh vegetables through PFFC as collective action is economically more sustainable than selling in traditional markets.

To examine the hold-up, adverse selection and moral hazard problems, we used the available survey information to define explanatory factors. It should be noted that obtaining quantitative transaction costs data is difficult and therefore was not done.

To discuss Proposition 1, according to TCE, three additional elements are considered under this theory: asset specificity (including physical and human assets), uncertainty and frequency. In this study, several factors can be used as proxies of transaction costs.

The extent of asset specificity is determined as follows; i) physical assets can be proxied by irrigated land and storage facilities. Members with larger more mechanized farm operations have access to more inputs for vegetable production which enables them to meet the contract requirements in terms of volume and quality. In addition, the cooling and storage facilities owned by the grower could imply less production risk in the future since they can keep vegetables longer. An irrigation system is also an example of physical asset specificity in producing vegetables where its value outside of the industry is lower or nil. ii) The age of the farmer that will increase with experience and additional local knowledge stands as a human asset. iii) Fresh vegetable production is site specific since it incurs higher transaction costs to transport them to farther distances due to perishability. In addition, PFFC supplies its products under a specific brand – Home Grown Saskatchewan, which may be considered a form of brand-related asset specificity. Given these asset specificities and the transaction costs involved along with possible asymmetric information (which is discussed below), PFFC members and TGP have come up with a more closely coordinated supply chain.

Frequency and uncertainty in the contract (transaction) were proxied by the duration of renegotiation of the contract. In terms of frequency the PFFC's agreement is an annual contract and it is assumed that parties will negotiate it every single year, showing that the parties are in a frequent transaction.

There may be uncertainty with regards to access to production inputs such as labour, fertilizer, water, etc. which are examined in the survey. Moreover, price as a potential source of uncertainty is negotiated and fixed by parties at the beginning of the growing season. This "fixing" helps growers reduce uncertainties about future prices, which helps reduce negotiation costs. The quantity is also fixed in contract which has a positive effect on reducing uncertainty since TGP has information about the market demand for fresh vegetables which is made available to the growers via the contracted quantities. Another important matter for members is the delayed payment relative to selling at a farmers' market which might increase uncertainty and reduce the attractiveness of the new organization. The delayed payment could be a considerable opportunity cost for growers. The disadvantage of this delayed payment is a reduction in utility for the members who have to wait before they get paid.

Overall, the new marketing organization used by growers does not appear to exhibit a high degree of uncertainty and members have indicated a willingness to make more investments in the future. For instance, they plan to buy new equipment. Thus, these results validate the first proposition about contractual uncertainty. Members of PFFC expected to face lower contractual uncertainty with their participating in collective action.

As mentioned in the theoretical chapter, Williamson (1985) classifies transaction costs into three types: information costs; costs of negotiating and writing an agreement; monitoring and enforcement costs. Producers must collect information about the transactions (such as price, supply conditions, buyer) before negotiating an agreement. Then, they will choose the trading party. To study information costs, respondents were asked a number of questions including: the difficulty in accessing information about price before selling, as well as the knowledge obtained from the value chain specialist. Members incurred costs to identify their potential buyer's demand and related specific requirements. Due to bounded rationality, there might be

an error in forecasting demand and price, however, the PFFC could also reduce these information costs for its members.

After the information search is finished, trading parties start negotiating a contract. Given the contractual relationship between PFFC and TGP, parties incur negotiation costs to write the agreement. Negotiation costs are examined through questions such as, satisfaction with payment conditions and negotiability of contract. The percentages of growers who have no other option to sell their products are expected to be interested in bargaining power through collective action.

Monitoring costs could be assessed by grading compliance problems and related questions. Both parties in the agreement incur monitoring costs in terms of quality control and monitoring the behaviour of another party in the contract. In addition, PFFC members face monitoring costs related to matching their production with requested volumes and costs of storage and marketing any surplus production. TGP needs to monitor the behaviour of PFFC members to ensure that the terms of the contract are fulfilled by its members. Nevertheless, the existence of a formal, clear set of grading standards reduces monitoring costs. The results show that the transaction costs associated with production has impacts on grower participation in PFFC. While grading and transportation create extra costs, other factors, such as higher volume and some economies of scale which could be realized by pooling, may lower costs.

To discuss Proposition 2, to study the three asymmetric information problems (hold up, adverse selection and moral hazard), the literature suggests that the growers will only invest when their bargaining power regarding the investments results in a sufficiently high return to cover their sunk costs. Investments in specific assets limit alternative uses of these investments which will affect the relationship-specific nature of transactions. Since the irrigation systems and storage facilities may be specific to vegetable production, they represent relationship-

specific investments. After establishing the PFFC, the way to overcome the hold-up problem could be to provide accurate information to limit the parties' ability to behave opportunistically. Providing details on products would minimize the information asymmetry problem and the market should operate more efficiently. In other words, PFFC helps growers create networks with each other. The organization holds meetings every month, which provide needed information to the members. On the other hand, holding these meetings can also be seen as an extra cost for the organization that should be taken into account in future years.

The growers mentioned, and results support the prediction, that a reliable and negotiable contract between PFFC and TGP might improve growers' incentives for investment and solve the hold-up problem related to investment. Growers want higher participation in PFFC if TGP provides information about future price and possible fluctuations and consumer demand. Regarding the interviewees' willingness to provide investment in the long run, Cook (2005) suggests that weak commitment by members leads to a lower level of willingness to provide equity capital among members. An organization would then be faced with a challenging problem when it needs additional funding for future success. Therefore, it is necessary to assess whether in fact collective action is a more profitable strategy in the long term, or in other words, if the new business can provide growers appropriate profit.

Agency theory and the principal-agent problem also have been used in this study to examine the behaviour of growers upon entering a new collective action and how the marketing agreement influences their efforts. The explanation relies on two key ingredients that were mentioned in the proposition: first, the adverse selection problem. Second, there is moral hazard in production; the quantity and quality of commodities is uncertain to buyers and depends on some unobservable actions of growers.

As mentioned, due to the quality issue and possible heterogeneity among PFFC's members, the potential adverse selection problem might occur. With heterogeneous members, decision making will be more difficult. For instance, negotiation among different types of members would be difficult. This will raise transaction costs, hence, there is need to screen them to prevent adverse selection. As long as most of PFFC's members are homogeneous in terms of farm size, facilities, and quality, the corporation may not fall into the adverse selection problem. In terms of homogeneous member's interests, the organization could use a strategy to make its member interests more homogeneous. As mentioned, members are divided into groups specializing in producing specific vegetables according to their facilities and knowledge. Hence, this increases the homogeneity among members to contribute to the organization's success.

Different studies found similar results by considering that, with increasing the heterogeneity of the membership, the contribution of members to the success of their cooperative seems to be declining. In this regard, Didi (2004) in his research on "low communication of fishing cooperatives on the management of coastal resource" concluded that the homogeneity of members and stability of small groups had a substantial impact on the success of cooperatives. Also, Hansmann (1996) shows that homogeneous members will have more common interests and this homogeneity is an essential factor for the success of cooperation.

Giving growers the incentives to reduce damage to product quality is an important step. Closer vertical coordination was a potential way to reduce the costs and increase the incentives to put effort into producing high quality. As mentioned, TGP is paying a certain price for delivered products, and this might encourage members to not put efforts into producing high quality vegetables to maximize their profit. Hence, TGP require the members to meet their own

standards in addition to CanadaGap. Therefore, growers have to deliver vegetables which meet the standards. Both parties enter into the contract as a result of the agency relationship between them, which allows the retailer to check the quality of the vegetables they are buying before the payment is made. As products are graded, this mitigates the adverse selection problem.

Furthermore, supplying vegetables through a certification program (CanadaGAP) and quality standards designed to induce members to increase control quality and safety actions can be an effective policy. CanadaGAP certification is issued when growers follow strict growing guidelines. These food safety and grading compliance programs provide incentives for a grower to adopt new practices such as new machinery or seed varieties. So, sorting and packing vegetables of uniform quality in specific bags reduces information asymmetries between parties, thereby decreasing the effects of both adverse selection and moral hazard problems. Furthermore, proper monitoring and enforcement may overcome the moral hazard problem.

The adverse selection problem can also be resolved by writing the contract based on specific delivered quality and time. In addition, PFFC as the agent is faced with choosing a principal (different supply market options) to contract, as long as the financial situation of principal (TGP) and its commitment to the contract is partially clear for PFFC, hence, adverse selection has been mitigated. If growers noticed that TGP are interested in having a long term contract with them, their uncertainty and cheating incentives about quality would decline. So, producers have incentives to coordinate more closely with the buyer.

As mentioned, members have joined the new organization to capture greater sales volumes. The PFFC would like to be recognized as a highly differentiated quality supplier throughout the province. The PFFC hopes that TGP will be willing to pay a higher price for a recognizable brand with a reputation for a consistent high quality product over time. Therefore, growers have incentives to sell through an agreement with a large retailer and invest in a new

brand. In other words, the potential adverse selection and moral hazard problems force growers to join the new organization to overcome them through marketing under a new brand. An important element of its marketing strategy is introducing a brand name under specific standards, which makes the production differentiation process easier for the group. One of the key parts of the differentiation is a name that contained Saskatchewan. All products from the organization will be sold under the "Home Grown Saskatchewan" logo, which is intended to stand for high reputation and quality. Actually, geographical names have been used for a long time to identify local "high quality" products. This brand name was advertised under the "The best of the best" clause in flyers that were designed to build a good image among retailers and final consumers. Therefore, the introduction of a new brand is considered as a specific investment or asset specificity for PFFC in order to meet consumers' demand for vegetables.

A brand is also intended to make the growers committed to compliance with high quality grading standards and strengthens trust between parties. In fact, the trust between parties which can also represent brand reputation would be a reason for selling a product via the organization. For instance, if one grower supplies a low quality product and it is not screened by quality monitoring (inspection or grading), it will damage the reputation of the whole brand and therefore jeopardizes the investments of the other members.

Moreover, the brand name can reduce information asymmetries, especially when the scale of production is small in a local market and it is hard for individual growers to establish a reputation on their own. Having a brand reputation would imply advantages to its members, for instance, small growers are able to sell their products without incurring all the costs that they have to spend on establishing a new brand. Also, successful branding leads to consumer loyalty to a particular brand which they are willing to pay more for brand features. As Morrison and Anderson (2002) show in their study, in new markets which have a large variety of products and brands, consumers are willing to rely on the reputation of brands instead of spending time

and money to directly ascertain the quality. Moreover, some people would rather purchase local food and pay a premium for it (Vogel, 1995). It must be mentioned that consumers' commitment to a specific brand would not be guaranteed in the long term due to competition in the market, so the organization must keep their specified high quality standards for its products to sustain it in the competitive market. In terms of the buyer's point of view, an important advantage of the new organization for TGP is that in the new agreement, local products would be fresher and also transportation costs are lower compared to imports from out of province. Also, it would be easier for TGP to negotiate the contract with a group compared to individual producers.

According to these results, we may be able to argue that the second proposition about asymmetric information and the potential for adverse selection and moral hazard issues are mitigated by frequent transactions, grading institutions and quality standards in place.

Results are consistent with the theoretical predictions developed in Chapter 3. According to the results, growers face some new transaction costs if they choose to participate and bargain to make a new contract. In addition, growers would lose their freedom of choice and the ability to make some management decisions by entering the agreement. The PFFC, which was presented as the case study of a newly established marketing organization, is a good example of how collective action can bring some advantages to members, for example, lowering traditional transaction costs (at least at the local level) and provide its members the opportunity of future growth. The results of this research show that members have positive perceptions on their participation in PFFC, presumably since they could reduce transaction costs associated with their participation. While problems of grading, quality and transportation have been constraints to join collective action, some aspects associated with the PFFC, such as fixed price and volume, frequency of delivery with TGP reduce uncertainty about markets.

To discuss Proposition 3, the PFFC has the capacity to fulfil the basic objective: help growers to sell their vegetables at volumes that can justify additional investments. By applying a new marketing strategy through collective action, competition in the market increases and the grower hopes of increasing their incomes. Moreover, collective action has reduced competition among growers and enables them to have the ability to deal with a large retailer. This case study shows that collective action in its initial steps plays a significant role in encouraging growers to join the organization and there was no evidence that the organization benefited only the larger producers. The study has also developed a model of monopolistic competition and economies of scale in the Saskatchewan fresh vegetable industry that help to explain the choice of members among different marketing channels. In the current case study, growers establish a collective action institution to strengthen their bargaining power and increase their market share. They follow a differentiation strategy to develop their special brand for a large retailer. However, they have received a lower price compared to traditional marketing channels, but, they can market larger volumes through the agreement (in other words, economies of scale) and less price competition. PFFC members carried out activities which can increase the value added of their products, such as picking, sorting, storing, grading, and packaging.

As mentioned, collective action allows farmers to garner economies of scale and the creation of economies of scale is one of the key mechanisms with which a producers' group can enhance their bargaining power. From this point of view, the scale of operations is a key source of bargaining power and strengthening their marketing capacity helps them to manage risks. By taking advantage of the opportunities that come from larger size and increased output, PFFC members can realize economies of scale and increase their profits. However, average unit costs usually decrease with increased output, but only to a certain point. So, PFFC board members should be careful about outgrowing their economies of scale and getting too big.

The economic model of monopolistic competition in our case study relies on this assumption; that the main benefit for marketing the products through collective action is achieving economies of scale. Members were not able to deal with a large retailer individually before joining the new organization. Growers could, however, access higher market shares after joining PFFC. Figure 4.15 represents the economic model of new collective action for fresh vegetables through utilizes in economies of scale and gaining higher volume. Vegetables are marketed to chain stores all over the province compared to only local farmers' markets in the past.

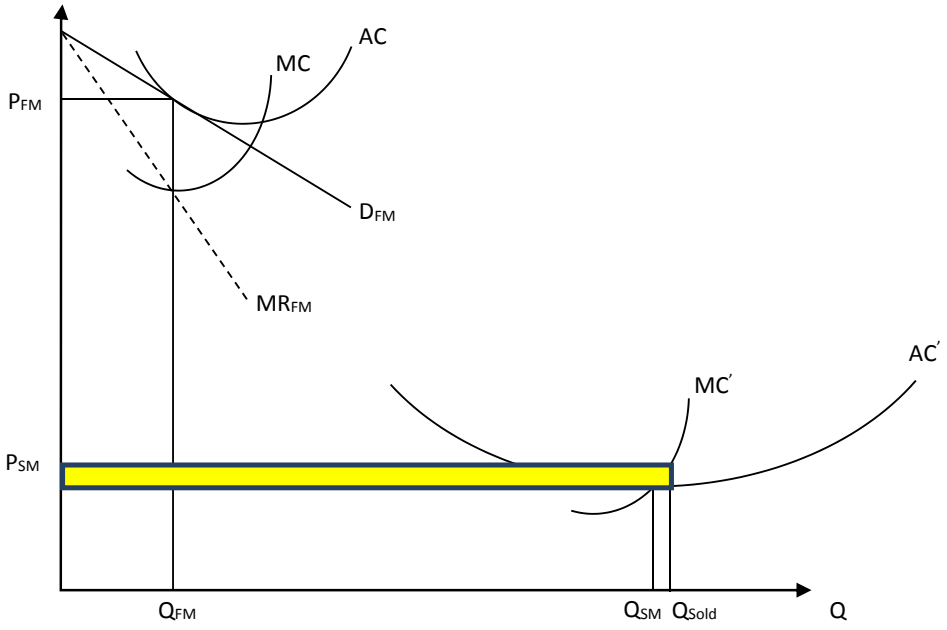


Figure 4.15 The economies of scale through PFFC

Members sell their vegetables to TGP through PFFC, they would make a new investment and average costs per unit would go down and the average cost curve moves from AC to AC' while productive capacity goes up as Q increases from Q_{fm} (quantity sold in farmers' market) to Q_{sm} (quantity sold in supermarket) The equilibrium point is where the TGP price, $P_{sm} = MC'$ and as $P_{sm} > AC'$ at Q_{sold} (quantity sold through new agreement), the grower makes at

supernormal profit. However, they get a lower price through PFFC compared to traditional markets such as farmers' markets, $P_{sm} < P_{fm}$, but, their unit cost of production declines more than the price due to economies of scale.

In PFFC production, economies of scale may arise from several sources, including irrigation systems, storage, and delivery systems. Hence, by taking advantage of economies of scale, growers' supply can increase and members can sell to a large retailer at a lower price compared to that received from selling to a farmers' market, and still make super normal profits.

The PFFC case illustrates that farmers are willing to accept a lower per unit price for their vegetables from the large retailer compared to marketing it individually in the local market. Growers chose to accept lower produce prices to access a larger volume market to reduce uncertainty about the market and help PFFC become profitable over time. Members agreed to lower prices, but ones that are profitable and perceived as fair. Increased market access and higher volumes for growers lead to increased supply reliability for the wholesaler. However, prices will be renegotiated in the future when circumstances warrant it. In other words, there is a tendency to want to sell through a local large retail market due to the stability they can provide. TGP provides PFFC's members the stable commodities volume and price, thereby, reducing the uncertainty and risk for the producers. This suggests that a stable market channel should encourage farmers' participation in the new marketing agreement since they would feel more secure rather than dealing with a large retailer individually. Thus, these results support the last proposition about new collective action. Proposition 3 stated that marketing fresh vegetables through PFFC is better than selling in traditional spot markets such as a farmers' market. Results of this research partially support this proposition. Members selling in the PFFC

are satisfied with receiving a higher volume than selling in the farmers' market. We do not know at this time if it is a more profitable strategy in long term.

On the other hand, selling through PFFC is associated with added complexity and performance expectations compared to the farmers' markets. For instance, prices and conditions of delivery are negotiated in the agreement. This may result in increased marketing costs including negotiating cost for growers. Further, small growers generally tend to prefer those market sales which give them immediate payments and do not incur extra transaction costs such as negotiation, grading and transportation costs. In addition, wholesale prices are relatively low compared to other marketing channels, hence, grower returns may tend to be lower per unit.

In the future, PFFC might also be faced with some problems, such as different interests of members due to their farm level characteristics that may occur as new members enter a growing organization. An increase in the degree of heterogeneity among members reduces the commitment and also increases decision making costs. This refers to the situation where large growers are able to make investments in enhancing their productivity versus small members who are not interested or not able to make a substantial investment.

Trust is an important factor in each transaction throughout this vegetable supply chain, which could be trust among members or willingness of TGP as a large retailer to enhance the trust of its consumers by offering the demanded quality. The PFFC tries to enhance the trust of TGP by producing a variety of healthy and high quality vegetables and making timely deliveries. Several papers from the literature discuss similar findings; Costa (2003) shows that trust among an organization's members is positively related to cooperative success. Moreover, Hansen et al. (2002) find that trust among members, along with trust between members and the board of directors in agricultural organizations, contributes to success of the organization. The

problem related to trust among members and also between the organization and the buyer (principal) and grower (agent) is that a lack of trust could affect the commitment of both parties. Also, large size growers might not be satisfied in future with voting rights that are equal, regardless of the quantity of product delivered. This could discourage them from investing time and energy in developing the organization since their voting power is not proportional to their sales.

4.7 Summary

The case study results were presented in this chapter, along with a general overview of the PFFC in the fresh vegetable supply chain in Saskatchewan. The case study analysis of PFFC reveals that the organization could provide positive benefits to its members in the early period of its establishment. The results show that the market share of the PFFC is still relatively small throughout the province, but its members expect it to expand in the future. There also exists willingness by at least one large retailer to trade with the new organization. Hence, the PFFC could offer new markets to its members, but there are still challenges related to quality compliance among industry members. The important factors in the choice of the new organization are focused upon. The market share of the new collective action in the selling of fresh vegetables in comparison to traditional markets was also examined. Given the small production of some individual growers in the market, it is impossible for them to sell individually to large supermarkets. Transaction costs, agency and monopolistic competition theories help to identify key determinants of success and challenges associated with the participation of growers in PFFC. Collective action issues are also examined in the case study. Further conclusions and discussion arising out of these theoretical frameworks are presented in the next chapter in order to draw conclusions regarding the motivations, success factors, and future outcomes for the PFFC in the Saskatchewan vegetable industry.

Chapter five: Conclusion and Recommendations

5.1 Conclusions

This thesis takes the approaches found in the literature (chapter 3) that apply to how collective action could work in the fresh vegetable industry and examines a case study of a new vegetable growers' organization in Saskatchewan. In this study the NIE approach was used to assess the vegetable growers' participation in PFFC in Saskatchewan. In addition, this research wanted to identify which challenges and problems are faced by members in a new collective action institution. For this purpose, four specific objectives were set out in the first chapter. Also, three main propositions related to contractual uncertainty, asymmetric information, and collective action were presented.

The objectives of this research are summarized in the three main propositions. First, in the new organization, it is expected that lower contractual uncertainty faced by members leads to participation in this collective action and also higher future planned investments. Second, parties' access to information about quality and effort in the marketplace are most likely different, which could mean a higher degree of information asymmetry between the parties and this will affect the level of trust among parties creating the potential for adverse selection and moral hazard problems. Third, marketing fresh vegetables through PFFC is more favourable than selling in traditional markets. This chapter summarizes the most important results of the thesis and provides suggestions regarding policy implications. Finally, the limitations of this study will be presented in addition to recommendations for future research.

The main contributions of the current study are: first, this study sheds light on the current case study by using the TCE, agency and monopolistic competition theories. Second, this research analyses the business and helps us to understand businesses like PFFC where agents cooperate when dealing with a principal.

This research started with an overview and description of the supply chain for fresh vegetables in Saskatchewan. In the supply chain from grower to final consumers for fresh vegetables, at least three segments of the chain can be distinguished: grower, organization and retailer. The individual grower produces specialized vegetables; the marketing organization takes care of marketing of the growers' products; the retailer supplies consumers through its distribution centre. For the marketing of their products, growers can choose between alternative channels (Figure 5.1).

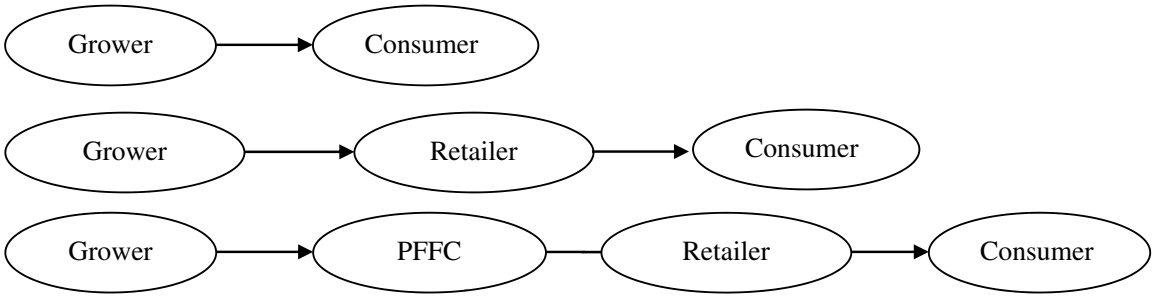


Figure 5.1 Three supply chains for fresh vegetables in the province

The first channel consists of only two parties: an individual grower sells directly to consumers, such as at a farmers' market. This channel is fairly common for growers in the province because of its relatively higher price. The second channel consists of grower, retailer and consumer. The grower directly trades with retailers in a contract. It could put growers at a bargaining disadvantage with the retailer, as well as being costly for the retailer in terms of negotiating with numerous independent growers, but, on the other hand, it might be more convenient than the traditional market for large growers in terms of the range of products offered which enable them to concentrate on a specific product, fixed volume which reduces uncertainties etc. In the third channel, growers have delegated the collection and marketing function to a collective marketing organization which enters into a contract with the large retailer. The retailer has a collection function as a distribution centre which buys from growers

and sells to consumers and PFFC just delivers products to the wholesaler under this model. As the marketing is carried out by the organization, growers collectively benefit from lower transaction costs, while individually they can specialize in production. In the case of imports, the channel may be much longer. For this thesis, however, it is sufficient to distinguish these three main parties.

From the survey sample, growers are currently selling 49.50 percent of their products in the farmers' market and 46.50 percent are sold through to PFFC. Other markets take 4 percent of products. PFFC members indicated that selling individually in farmers' markets or any other spot market, involves high transaction costs such as; negotiating directly with consumers, meeting various consumer concerns about variety and frequency, along with transportation and costs associated with selling in a physical market.

In most aspects, the evidence from PFFC in the vegetable industry is in accordance with the reviewed literature. In terms of member characteristics, the findings of this study show that members' characteristics may influence members' attitudes towards the agreement. They also could provide insights into assessing members' behaviours. Most members are middle size growers who have an incentive to participate in a new collective action organization. Very large growers may have fewer problems with high transaction costs due to their higher bargaining power and, hence, might have a lower incentive to participate. On the other hand, very small growers may find that the benefits of the new organization would not offset the transaction costs associated with it since they are not able to supply a large volume of high quality products, have limited access to information, technologies and training to improve their production practices.

The years of farming could proxy for the experience in vegetable growing. Literature shows that the longer the period of growing vegetables, farmers become more experienced in

choosing a market since they have a better idea of the costs and benefits associated with each market. Experienced growers believed that this new marketing organization collects and sells products at a higher profit than they would be able to get from private buyers, although, they also mentioned that remaining in the agreement needs more information and bargaining power rather than other marketing options. Some members, however still market their extra products on their own in farmers' market. Along with the grower's characteristics, the choice of market also depends on the nature of transaction costs.

According to respondents, growers purchase or build refrigerated storage which is very costly. It showed they have a tendency to invest in the future growth of PFFC, which means they desire to stay committed to the agreement, and it also shows the loyalty as well as it suggests that growers have trust in TGP and are not concerned about being held up by the buyer. This may mean that they could expand their production, hence, potentially increasing their income.

The important benefit from collective action is that producers can improve their bargaining power with buyers. When they are working as a group, it is possible to obtain a larger market. In the case of PFFC, the important change is obtaining higher volumes by organizing the harvesting, storage, grading, sorting and selling to wholesalers through collective action and utilization of economies of scale in marketing. However, the profit of members obviously depends on the supply of fresh vegetables from the others in the market and the competition with other brands in the supermarket. The new collective action institution has to provide advantages to growers; this occurs through secure markets and increases in their negotiating power which leads to higher volumes, thereby perhaps higher profit.

For any of the large retail outlets, consistent quality and supply are important factors in their purchasing decisions. TGP requires that PFFC provide assurances regarding consistency

of supply and quality for all products. In the interviews, quality standards and safety control were ranked as important issues by respondents and growers are aware of the adverse selection and moral hazard problems in reality if not by name.

In terms of safety and quality assurance, both CanadaGap and TGP regulation and standards apply. Members assure buyers about their products' quality and safety through these two assurance systems. The CanadaGap certification (a private standard) can provide information for the buyer, and enhance reliance on information regarding food safety. Also, TGP implemented its private standards to assure delivery of high quality products. As a result, the risk to the buyer would be lower. It also would be a confirmation of safety and quality of the vegetables. The strategy of the new brand under the CanadaGAP certification may also enable PFFC to create consumer loyalty. This strategy requires all growers to follow the requirements. If the consumer finds any problems, the reputation of all the growers will be negatively impacted. Moreover, quality and safety control may increase transaction costs but it would enhance the competitiveness of the vegetables. Members of the PFFC bring their vegetables together hence, they are able to raise and harmonize their product quality. This is done by sorting the deliveries from each grower into bundles of a similar quality. It is obviously done by the group working in each zone and assists in getting each member to produce vegetable of the same quality, and delivered at the same time. A high degree of collaboration is required.

Moreover, the product packaging and nutrition labelling provides information on quality, and thus, reduces the potential opportunistic behaviour by both sides of the contract. Hence, investment in grading is important. Once the organization gets a reputation for producing standardized vegetables in bags of accurate weight, the buyer (TGP/final consumer) will be more willing to buy from them in the future. In addition, due to the specific barcodes on bags,

the tracing mechanism can detect problems resulting from misrepresentation and those who do not maintain compliance standards would lose membership in the program. The system of barcoding maintains an identification link between grower and buyer especially when the real quality such as taste of product is often revealed only through actual consumption by retailer (Coop)'s consumers. This reveals the importance of traceability in this transaction. Hence, it will reduce asymmetric information and it reduces the risk of the moral hazard problem.

Objective two focused on assessing the factors associated with growers' incentives to participate in the PFFC. Figure 5.2 shows a combination of theoretical results with evidence from PFFC. These three grower's incentives are related to each other since growers pool their resources together and achieve economies of scale, their average transaction costs will decrease and they are able to market products.

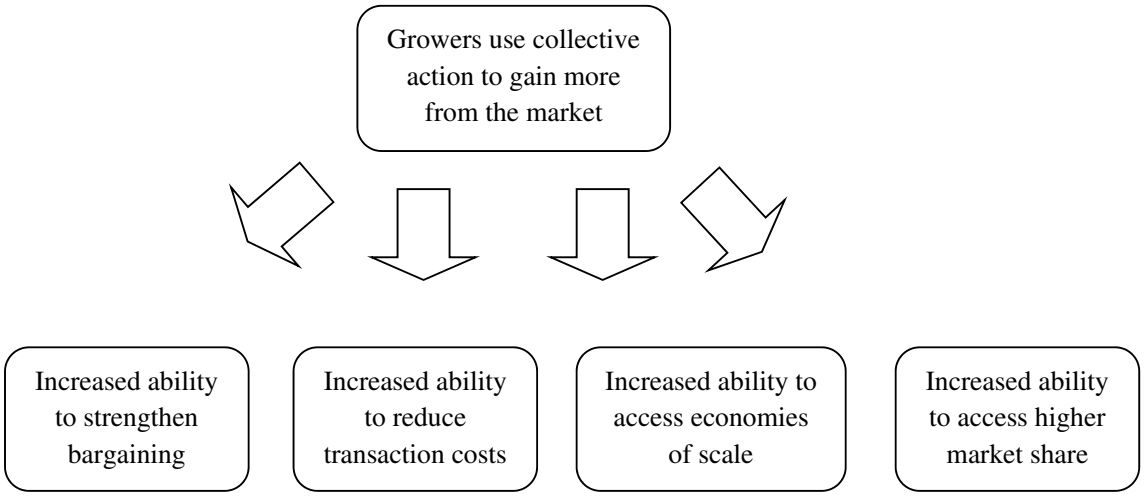


Figure 5.2 Growers' incentives for joining PFFC

Assessing the collective action is another objective in this thesis. According to the results discussed in the previous chapter, the survey responses show evidence that members are

planning to expand their businesses. Most of the members do not use all their available land for vegetable production for various reasons such as they may not be able to afford it or presumably may be growing other crops or they face other resource restrictions. Collective action could make marketing easier and increases the growers' incentives to use more land for vegetable production and produce a larger quantity which may provide increases in their profits depending on increased costs. Their future investment plans include increasing the amount of land planted and increasing vegetable storage capacity. Growers also have been planning to grow new vegetables and improve their technologies (e.g. knowledge of production practices, packaging, storage facilities, etc.) in order to deal with buyers. Therefore, growers' participation depends on how the PFFC's services meet its members' expectations. Hence, services in collecting (pooling), marketing (which involves negotiations with TGP) and sending to distribution centres are very important. In the survey, just one grower was selling directly to a large retailer; therefore, the importance of collective action to participate in the supply chain is confirmed.

The research also found that members of PFFC have encountered some challenges in terms of improving their interaction with TGP. For instance: the location of the warehouse and the development of pick zones within PFFC. Since only some growers have their own truck to transport the vegetables, other growers have to schedule the date and time of picking their products. Hence, they incur new costs of renting the vehicle in addition to fuel costs.

PFFC faces challenges due to the degree of contractual uncertainty involved and the transaction costs. According to the survey, the main challenges for growers are to meet the TGP requirements in terms of volume, quality, frequency, and consistency. As mentioned in the theoretical chapter, information costs and asymmetries, as well as the potential for high transaction costs might lead to contractual uncertainty, which is relevant to the negotiation of

contracts between the PFFC and TGP. In this case, information on a range of issues is required before re-negotiating the agreement; for instance, assessing the market demand, negotiating the contract between two parties in terms of agreement details such as price, volume, handling, quality and delivery. The situation in the vegetable industry is particularly difficult, since production levels fluctuate seasonally, due to weather. As long as fresh vegetables are perishable, if TGP for these products cannot offer a price sufficient to make a profit, farmers may not be interested in selling through the PFFC anymore and act individually through other channels. Besides, there might be some differences in the amount and type of information needed by each party (e.g. information about price or market demand is more important for the growers' side, and the buyer requires assurances about quality in the agreement etc.). Acquiring this information is costly. Furthermore, members vary in terms of their knowledge and experience. Assessing these differences and anticipating their ability to determine their production share may be difficult and costly for TGP.

Another important matter for members is the lower price compared to the farmers' market and the delayed payment which might reduce the attractiveness of the new organization. The delayed payment could be a considerable opportunity cost. The disadvantage of this delayed payment is a reduction in utility for the members who have to wait before they get paid. Hence, some members have more incentives to exit the contract and sell their products into those markets which will pay them right away.

There could also be some other reasons for PFFC not meeting the objectives in the future, which include a lack of finance, lack of ready markets, weather issues, poor organization management, and a lack of capacity to collect information and anticipate price fluctuations in the future. Based on the literature reviewed and the information available, some growers may not stay in the agreement in some situations; they may have low trust in other members in their

own pick zone and may not wish to stay with collective action. Some members feel that they would be able to obtain a higher price in other market channels. They may feel they are not interested in sharing their experiences and knowledge with other members. In addition, there might be some growers who do not have the needed skill and knowledge to work with others since selling in retail markets with product standards requires a certain degree of knowledge.

Generally speaking, the payment approach for products impacts on the growers' incentives to engage more into the new business. Table 5.1 summarizes objectives and entry requirements of the three different ways of marketing fresh vegetables in Saskatchewan.

Table 5.1 Comparing three marketing channels in Saskatchewan vegetable industry

Market	Objectives	Requirements
Farmers' market	• Meet local demand • Maintain high quality and • Make profit	Picking, sorting, transport and selling activities done by individual growers and staff
Direct to supermarket	• Access to provincial demand • Maintain high quality • Obtain higher volume • Make more profit • Reduce risk through contract (for each individual on their own)	Picking, storage, sorting ; quality requirements, food safety compliance (CanadaGap), transport and selling activities be done by individual growers and staff
PFFC (quality premium)	• Access to provincial demand • Maintain high quality • Obtain higher volume • Make more profit • Reduce risk through contract and some bargaining power	Picking, storage higher volume, sorting, quality control standards, food safety compliance (CanadaGap), membership fees transport and selling activities be done by growers and staff through collective action

5.2 Recommendations

To summarize, the PFFC is a marketing tool for its members which enables them to collectively access a larger market for fresh vegetables; PFFC also carries out services that are not achievable for small growers due to the high transaction costs, offers a long term contract, reduces economic uncertainties in terms of contract and quality, reduces the holdup problem and decreases some transaction costs for members, although it also introduces new transaction costs. Based upon the survey results, it appears that PFFC is a good supply chain alternative to the farmers' market for members. At this point, by assessing the current collective action institution and associated constraints, the study provides some recommendations for policy makers and future research to encourage small producers to participate in such new collective action institutions.

The assessment of transaction costs, incentives and constraints associated with participating in PFFC considered in this case study provide ideas for other parties who are interested in developing collective action institutions in Saskatchewan. Important issues to consider will include required tools and policies to overcome barriers such as entry, grading, quality, frequent supply, and payment system etc. The results can also be used to understand the constraints faced by producers who are planning to switch from traditional markets to closer vertically coordinated markets.

Generally speaking, applying a combination of penalties and rewards may be a way to motivate members to supply a higher quality service or product. Therefore, the study suggests some form of penalties for poor performance (including quality and delivery) along with rewarding growers for good quality production. However, applying this combination would require extra transaction costs for both parties, but, it would be effective to reduce opportunistic behaviour and provides an incentive to expand the contract. The associated costs would not

necessarily be the same for PFFC and TGP, especially TGP in the contract in terms of the monitoring and enforcing agreement.

The research also suggests higher prices through collective marketing in the context of this case study will provide additional incentives for members to participate in group activities. The higher prices may provide members with an incentive to put more effort into production and raise quality. On the other hand, instituting some form of advance payment might solve the member's cash flow needs and reduce the uncertainties regarding returns that could affect their loyalty.

Although this new collective action may facilitate increased access to larger markets by small growers in Saskatchewan, it is not sufficient. Members of organizations need to obtain information about price and consumer demand in the market and be informed regarding changing conditions. Collective action can provide a basis for knowledge exchange and shared learning. Hence, TGP and PFFC board members should consider improving relationships with members by making reports or meeting face to face to inform members.

The future success or failure of PFFC depends on its board members' ability to make decisions. Since the members' participation is an important factor of any organization's success, the board members of PFFC should encourage and engage its members to participate in decision making. Hence, the board needs to create awareness among members and increase their confidence in the power of PFFC in different ways (such as training, meeting and etc.) regarding promoting the member's participation in the organization. Trechter et al. (2002) argue that education (about production practices, marketing etc.) influences positively on members' commitment to the success of an organization. Hence, PFFC may create and increase the members' commitment by providing education and training courses in a continuing process to improve growers' knowledge of production practices and new technologies. It is also

necessary for the board of directors to maintain its frequent communications with members to find out its members' concerns and problems and reduce the asymmetric information. In fact, directors should ensure that the organization is run according to its members' visions. Furthermore, PFFC's board of directors need to find ways to increase its members' commitment. Fulton (2004) finds that member commitment would increase through strong feedback. Hence, the board has to be aware of and manage its feedback to members.

The PFFC board should also oversee members and support them and provide necessary skills and knowledge in terms of finance, marketing and production to growers through meetings and courses. Thereby, growers with strong knowledge, experience and production abilities will be able to deal with risk and the information asymmetry problem. In fact, it might be easier for development agencies such as ACS to organize training services for the group compare to dealing with individual growers. This could be investigated in the future. Along with training, it has to be emphasized that the value chain specialist had a major role in ensuring stability and encouraging trust between the members and the buyer. The value chain specialist is an example of a common resource in PFFC. The specialist provides important marketing information to the members; he also provides important information about the members' crops to the organization to aid in marketing decisions. The ACS funds this person. He has also been important in establishing trust in the agreement especially at the initial steps; therefore, the principal agent problem has not been manifest to any considerable degree. To avoid any issue after the specialist leaves the project, PFFC has developed a long term strategy for succession planning as it grows.

Along with the surveys' results and based on growers' concerns, the study also suggested some support from PFFC in terms of its members obtaining inputs at favourable prices as a potential future role. PFFC may be able to decrease members' transaction costs by organizing

the buying of input materials to establish more secure supplies and lower degree of market uncertainty for the long term. This could help growers to access inputs more easily and cheaply, which reduces costs of production.

Government may wish to promote the vegetable industry, which reflects the importance of public health, thereby, increasing growers' production along with the number of new members would be critical objectives in near future. Saskatchewan's Ministry of Agriculture can indirectly influence the incentives of growers to work with PFFC. It is also suggested that current members in PFFC can be a great way to encourage other vegetable growers to join the new organization by organizing social events or publishing information. It has to be mentioned that problems of growers cannot be solved simply by government support; although it seems to be important in the case of a small organization in its early stages. In addition, the government could provide cost information on grading services. This support may be helpful to reduce misrepresentations. Therefore, this suggestion could reduce potential opportunistic behaviour regarding quality issues which leads to adverse selection and moral hazard problems.

Generally speaking, although the special emphasis of this study is on PFFC, the outcomes can be used in many cases for understanding the benefits and challenges confronted by producers who want to switch from traditional spot markets to more closely coordinated markets.

5.3 Limitation of the study

It is worth noting that PFFC is still in its initial stages with many structural weaknesses and significant potential for expansion and improvement and it is too early for this research to recognize their weaknesses and analyze its performance over the long term. Moreover, Saskatchewan is not a major producer of vegetables. The case represents a small share of the total vegetables sold in supermarkets across the province. The study is limited by the relatively

small sample size which consists of only 16 growers and just 11 members who participated in the survey. There are other non-member growers who deserved to be included in this type of research. The sample size could be increased by targeting member and non-member growers in the province in future research. Also, most of the respondents are small to medium size growers. Grouping growers according to common characteristics, such as, size, products etc. can reduce misrepresentations and make conclusions clear. In addition, it would be interesting to also have interviewed growers who chose not to participate, to find out why they declined to participate. Collecting more information regarding new members and considering non-members' points of view would give more validity to the findings. The survey did not collect this type of data that would be required to make these comparisons due to confidentiality issues.

Case study information was used to identify determinants of growers' incentives. The PFFC as an institution for collective action in marketing is focused on reducing transaction costs and enhancing producer profits. Besides, a reduction in price risks could be beneficial to members, but, it is difficult to measure this risk without time series data about production costs and price in all markets, but interviewees did not reveal their financial details.

Moreover, an issue with collecting information was that TGP did not provide some information, such as current and future quantities of sale, which would have been necessary in order to assess changes over time and analyze the program's achievements. In addition, accurate statistical data from the Saskatchewan vegetable industry is not available and the questionnaire used in this survey was not able to obtain all the necessary information. It cannot be said that clear evidence was found for the propositions, but this could possibly be due to statistical problems such as the number of people interviewed or missing data. Also, analyzing other sectors could help to provide comparisons which could give a better context to the PFFC. Last but not least, we did not include final consumers in the study which would be necessary

to assess the changes in their demand during the last year and see how this new line of vegetable products may affect their consumption decisions.

5.4 Future Studies

It should be noted that the current agreement between PFFC and TGP is related to their characteristics and local context (such as scale and market environment). In future research, a different survey could be designed to investigate the financial aspects of the agreement such as price trends and the effect on production costs. This study used the case study method in a relatively small study area. It could be interesting if a survey would be conducted in a larger area and to compare with the current results. Moreover, it would also be interesting to examine growers who do not belong to a collective marketing organisation such as PFFC to understand the barriers that discourage participation.

Another interesting matter as a future study is to examine consumer preferences since they are the main target of retailers and it would be useful to understand whether vegetables sold through PFFC match end consumers' demand. Government's specialists believe that there is an opportunity to market Saskatchewan grown vegetables to Mexico, the United States and South America during their off-seasons. This opportunity requires investigation.

It seems the role of trust, or member loyalty, is very important for the future. Member loyalty is one of the crucial issues for the future of PFFC, especially in terms of the uncertainty in the Saskatchewan vegetable sector. This contractual relationship is built on the trust that each party will fulfill their duties. It also increases mutual trust and friendship amongst the members, who would otherwise be competitors. Clearly there is a need for more research on the phenomenon of trust. For example, different relationship issues may influence the trust, such as length of contract and various cost issues.

On the other hand, efforts to improve quality, monitor and trace vegetables will increase both parties' profits only if consumers are willing to pay a premium price for high quality vegetables and if price premiums are passed along to growers since some consumers may place a higher value on the safety of fresh vegetables, as well as on an assurance of local supply. This concern should be studied in further research.

Finally, since the government could play an important role in the development of farmers' organizations in Saskatchewan, especially in their early stage of establishment and development, future studies could identify the most appropriate ways that government could foster the successful development of producers' collective actions.

References

Agriculture and Agri-Food Canada (AAFC). (2013). An Overview of the Canadian Agriculture and Agri-Food System 2013. http://www.agr.gc.ca/eng/about-us/publications/economic-publications/alphabetical-listing/an-overview-of-the-canadian-agriculture-and-agri-food-system-2013/?id=1331319696826 (accessed June 6, 2013).

Agriculture and Agri-Food Canada. (2012). Statistical Overview of Canadian Horticulture 2010-2011. http://publications.gc.ca/collections/collection_2012/agr/A71-23-2011-eng.pdf (accessed December 2, 2012).

Agriculture and Agri-Food Canada. (2011a). An Overview of the Canadian Agriculture and Agri-Food System 2011. http://publications.gc.ca/collections/collection_2011/agr/A38-1-1-2010-eng.pdf (accessed August 1, 2013).

Agriculture and Agri-Food Canada. (2011b). A Snapshot of the Canadian Vegetable Industry, 2010. http://www4.agr.gc.ca/resources/prod/doc/horticulture/brochure-cdn-veg-ind-2010_eng.pdf (accessed October 6, 2012).

Agriculture and Agri-Food Canada. (2010). Fresh Foods: A Growing Opportunity in the North American Convenience Store Sector. http://www.healthycornerstores.org/wp-content/uploads/2011/11/fresh-foods-a-growing-opportunity.pdf (accessed October 1, 2012).

Ag-West Bio Inc., (2012). Agriculture Council of Saskatchewan. http://www.agwest.sk.ca/skbiodirectory-dtl/Research-and-Development/acs.html (accessed November 03, 2012)

Albaum, Golden (1997). The Likert Scale Revisited: an Alternate Version. *Market Research Society*, 39 (2), 331-48.

Allen, D.W. and D. Lueck. (2005). Agricultural contracts. In *C. Menard & M. M. Shirley (Eds.), Handbook of new institutional economics* (pp. 465-490). Dordrecht, The Netherlands: Springer.

Anderson, M., H. Brunke and J.J. Keeling. (2003). Economic Implications of Reorganizing the California Raisin Marketing Order. California Raisin Marketing Board Rev. May 29, 2003.

Anton, J. and D. Yao. (1994). Expropriation and Inventions: Appropriable Rents in the Absence of Property Rights. *American Economic Review*, 84 (1), 190-209.

Arrow, K.J. (1985). The Economics of Agency. In *J.W. Pratt and R. J. Zeckhauser, eds., Principals and Agents*. Boston: Harvard Business School Press., pp. 37-51.

Azzam, A. (1996). Testing the Monopsony-Inefficiency Incentive for Backward Integration. *American Journal of Agricultural Economics*, 78. (3), 585-590.

Baldenius, T, S Reichelstein and S.A. Sahay. (1999), Negotiated versus Cost-Based Transfer Pricing. *Review of Accounting Studies*, Vol. 4, 67-91.

Barney, J.B. and M.H. Hansen. (1995). Trustworthiness as a Source of Competitive Advantage. *Strategic Management Journal*, Vol. 15, 175-190.

Barrett, C.B. (2008). Smallholder Market Participation: Concepts and Evidence from Eastern and Southern Africa. *Food Policy*, Vol. 33 (4), 299-317.

Bastos, Rafael and Julio Pindado (2009). Trade Credit, Creditor Protection and Accounting Standards: Evidence from an International Sample. *Revist a de Economía Financiera*, Vol. 17, 10-33.

Baumol, W.J., A.S. Blinder, and W.M. Scarth. (1994). Microeconomics: Principles and Policy (4nd ed). Harcourt Brace & Company Canada , Ltd. ISBN 0-03-922974-2.

Bijman, J. (2005). Cooperatives and Heterogeneous Membership: Eight Propositions for Improving Organizational Efficiency. Paper presented at the EMNet-Conference, Budapest, Hungary, 15 September.

Bijman, J. (2002). Essays on Agricultural Cooperatives; Governance Structure in Fruit and Vegetable Markets. Doctor of Philosophy thesis, Erasmus University Rotterdam, Erasmus Research Institute of Management.

Blandon, J. (2006). Supermarket Supply Chain for Fresh Fruits and Vegetables: Opportunities and Challenges for Small Farmers. Doctor of Philosophy thesis, University of Guelph.

Boland, M., V. Pozo, and D. Sumner. (2009). Sunkist Growers, Inc.: Refreshing the Brand. *Review of Agricultural Economics*, 31 (3), 628–639.

Bromiley, E., and Cummings, L.L. (1995). Transactions Costs in Organizations with Trust. In R. Beis, B. Sheppard, and R. Lewicki (eds.), Research on Negotiations in organizations, 5, 36-45.

Brown, W.J. (2002). Agribusiness Cases in Supply Chain Management. A paper prepared for presentation at *the 13th International Farm Management Congress*. Wageningen, The Netherlands, 7 July.

Brown, W.J. (2000). The Raisin Administrative Committee (RAC), a Case Study. Unpublished Working Paper, Department of Agricultural Economics, University of Saskatchewan

Cape Agricultural Products. (2013). Citrus Harvesting Tools. http://www.great-pruning-products.com/harvestcitrus.html (accessed December 1 2013).

Cazaux, D.S. (2005). Orange Empire: California and the Fruits of Eden. Berkeley, CA: University of California Press. ISBN: 0-520-23886-9.

Chamberlin, E. (1933). *Theory of Monopolistic Competition*. Cambridge, MA: Harvard University Press.

Chambers, W. and R.P. King. (2002). Changing Agricultural Markets: Industrialization and Vertical Coordination in the Dry Edible Bean Industry. Review of *Agricultural Economics*, 24 (2), 495-511.

Che, Y.K. and J.S. Akovics (2004). A Dynamic Theory of Holdup. *Econometrica*, 72 (4), 1063-1103.

Christensen, L.P. (2000a). In Raisin Production Manual, Current Developments in Harvest Mechanization and DOV. In *UC Agricultural and Natural Resources Communications Services, Oakland, CA*., pp. 252-263.

Christensen, L.P. (2000b). In Raisin Production Manual, Growth Regulators. In *UC Agricultural and Natural Resources Communications Services*, Oakland, CA, 139–141.

Coase, R.H. (1992). The Institutional Structure of Production. *American Economic Review,* 82 (4), 713–719.

Coase, R.H. (1937). The Nature of the Firm. *Economica*, Vol. 4, 386-405.

Cook, R. (2005). The Changing Marketplace for California Crops: focus on Fruits and Vegetables. A paper presented at *the California Agricultural Symposium*. Sacramento, 23 March.

Cook, M.L. and F. Chaddad. (2004). Understanding New Cooperative Models: An Ownership-Control Rights Typology. *American Journal of Agricultural Economics*, 26 (3), 348-360.

Cook, M.L., and C. Iliopoulos. (2000). lll-Defined Property Rights in collective Action: The Case of US Agricultural Cooperatives. In *C*. Ménard ed., *Institutions, Contracts, and Organizations,* Edward Elgar, Cheltenham, U.K., pp. 335-348.

Costa, A. C. (2003). Work Team Trust and Effectiveness. *Personnel Review*, 32 (5), 605-622.

David, R.J. and S.K. Han. (2004). A systematic Assessment of Empirical Support for Transaction Cost Economics. *Strategic Management Journal*, Vol. 25, 39-58.

Deininger, K. (1995). Collective Agricultural Production. A Solution for Transition Economies? *World Development*, 23 (8), 1317-1334.

Denscombe, M. (2003). The Good Research Guide: For Small Scale Social Research Projects. (2nd ed). Maidenhead and Philadelphia: Open University Press.

Dewatripont, M., P. Legros and S. Matthews. (2003). Moral Hazard and Capital Structure Dynamics. *Journal of the European Economic Association*, Vol. 1, 890-930.

Didi, B. (2004). Short Communication Fishing Cooperatives Participation in Managing near Shore Resources: The case in Capiz, Central Philippians. *Fisheries Research,* Vol. 67, 81-91.

Diez-Vidal, L. (2007). Explaining Vertical Integation Strategies: Market power, Transactional Attributes and Capabilities. *Journal of Management Studies*, Vol. 44, 1017-1040.

Dimitri, C. and E. Lichtenberg. (2002). Quality Inspection, Adverse Selection and Trade in Perishable Commodities. Series Working Papers. University of Maryland, Department of Agricultural and Resource Economics,

Edlin, A.S. and B.E. Hermalin. (2000). Contract Renegotiation and Options in Agency Problems. *Journal of Law, Economics, and Organization*, Vol. 16, 395-423.

Evans, R. (2008). Simple Efficient Contracts in Complex Environments. *Econometrica, Econometric Society*, 76 (3), 459-491.

Ewins, A. (2006a). Competition Grows Heated for Wheat Board Grains. *The Western Producer*. 14 September.

Ewins, A. (2005d). Producer-owned Firms Buy Terminal. *The Western Producer*. 12 May.

Fairbairn, G. Lawrence (1984). From Prairie Roots: The Remarkable Story of Saskatchewan Wheat Pool. Western Producer Prairie Books: Saskatoon, Saskatchewan. pp. 318.

Fan, J.P.H. (2000). Price Uncertainty and Vertical Integration: an Examination of Petrochemical Firms. *Journal of Corporate Finance*, Vol. 6, 345-376.

Fink, A.G. (2002). *The Survey Kit. How to Report on Surveys*, 2nd ed. Sage Publications Inc. Thousand Oaks, California.

Foss, K. (1998). Modular Product Design: Creating "Technologically Separable Interfaces". Department of Industrial Economics and Strategy Copenhagen Business School.

Fulton, M.E. and K.A. Larson. (2009). The Restructuring of the Saskatchewan Wheat Pool: Overconfidence and Agency. *Journal of Cooperatives*, Vol. 23, 1-19

Fulton, M. (2006). The Canadian Wheat Board in an Open Market: The Impact of Removing the Single-Desk Selling Powers. Saskatoon: Knowledge Impact in Society, University of Saskatchewan.
http://www.kis.usask.ca/publications.html (Accessed June 11, 2013)

Fulton, M., Ketilson, L. H., Gertler, Michael, Dobson, Roy and Leslie Polsom (1998). *The Social and Economic Importance of the Co-operative Sector in Saskatchewan*. Research Report Prepared for Saskatchewan Department of Economic and Co-operative Development. Centre for the Study of Co-operatives, University of Saskatchewan.

Ganbaatar, U. (2011). An Economic Analysis of Commercialization of Innovation in Small Saskatchewan Agribusinesses. Master of Science thesis, Department of Bioresource Policy, Business and Economics, University of Saskatchewan.

Gatin, L. (1999). Restructuring the Saskatchewan Wheat Pool. Master of Science thesis, University of Regina.

Ge, H. (2012). Analytical and Agent-Based Approaches: Mitigating Grain Handling Risks. Doctor of Philosophy thesis, Department of Bioresource Policy, Business and Economics, University of Saskatchewan.

Goodhue, R., D. Heien, H. Lee and D. Sumner. (2003). Contracts and Quality in the California Winegrape Industry. *Review of Industrial Organization*, Vol. 23, 267-282.

Goodhue, R.E., R.C. Gordon and L.K. Simon. (2000). Processor Placements and Producer Incentives: Analyzing Broiler Chicken Production Contracts. Working Paper # 858, Department of Agricultural and Resource Economics and Policy. Division of Agriculture and Natural Resources University of California, Berkeley.

Goodhue, R.E. (2000). Broiler Production Contracts as a Multi-agent Problem: Common Risks, Incentives, and Heterogeneity. American Journal of Agricultural Economics, Vol. 82, 606-622.

Green, C. (2003). Produce Passion. *Canadian Grocer*. Toronto, ON: Rogers Media. (December 2003/January 2004).

Grossman, S., and O.D. Hart. (1986). The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration. *Journal of Political Economy*, Vol. 94, 691–719.

Guriev, S. (2003). Incomplete Contracts with Cross-Investments. Contributions to Theoretical Economics, Berkeley Electronic Journals on Theoretical Economics, 3 (1), Article 5.

Halinen, A. and J.Å. Tornroos. (2005). Using Case Methods in the Study of Contemporary Business Networks. *Journal of Business Research*, 58 (9), 1285-1297.

Hansen, M. H., J. L. Morrow Jr. and J. C. Batista. (2002). The Impact of Trust on Cooperative Membership Retention, Performance, and Satisfaction: an Exploratory Study. *International Food and Agribusiness Management Review,* 5 (1), 41–59.

Hansmann H. (1996). The Ownership of Enterprise. Cambridge, MA. Harvard University Press.

Harris, J., Hunter, J. and C.M. Lewis. (1995). Introduction, Development and Significance of NIE. *The New Institutional Economics and Third World Development*. London: Routledge, pp. 1-13.

Harris, A., M. Fulton, , B. Stefanson and D. Lysyshyn. (1998). Working together: The role of External Agents in the Development of Agriculture-based Industries. Saskatoon, SK: University of Saskatchewan, Centre for the Study of Cooperatives.

Hart, O. and J. Moore. (1999). Foundations of Incomplete Contracts. *Review of Economic Studies*, Vol. 66, 115-138.

Hart, O. (1995). Firms, Contracts, and Financial Structure. Clarendon Lectures in Economics, Oxford, UK: Oxford University Press.

Hart, O. and J. Moore. (1988). Incomplete Contracts and Renegotiation. *Econometrica*, 56 (4), 755-785.

Hendrikse, G.W.J. and J.J. Bijman. (2002). Ownership Structure in Agrifood Chains: The Marketing Cooperative. *American Journal of Agricultural Economics*, Vol. 84, 104-119.

Hendrikse, G.W.J. and J. Bijman. (2001). On the Emergence of Growers' Associations: Self-Selection versus Market Power. Erasmus Research Institute of Management (ERIM), ERIM Report Series Research in Management.

Hendrikse, G.W.J (1998b). Modern Organization, Schoonhoven: Academic Service.

Hobbs J.E. (2004). Information Asymmetry and the Role of Traceability Systems. *Agribusiness*, 20 (4): 397–415.

Hobbs, J.E. and L.M. Young. (2001). Vertical Linkage in Agri-food Supply Chains in Canada and the United States. Research and Analysis Directorate, Strategic Policy Branch, Agriculture and Agri-Food Canada, Ottawa, Ontario. (Available at http://www.agr.gc.ca/pol/index_e.php?s1=pub&s2=vertical)

Hobbs, J. E., Cooney, A., and Murray Fulton. (2000). Value Chain in the Agrifood Sector Saskatoon, SK. University of Saskatchewan, Department of Agricultural Economics.

Hobbs, J.E. and L.M. Young. (2000). Closer Vertical Co-ordination in Agri-food Supply Chains: A Conceptual Framework and Some Preliminary Evidence. *Supply Chain Management: An International Journal*, 5 (3), 131-143.

Hobbs, J.E. (1997). Measuring the Importance of Transaction Costs in Cattle Marketing. *American Journal of Agricultural Economics*, Vol. 82, 1083-1095.

Hobbs J.E. (1996a). Transaction Costs and Slaughter Cattle Procurement: Processors' Selection of Supply Channels. *Agribusiness*, 12 (6), 509-523

Hobbs, J.E. (1996b). A Transaction Cost Approach to Supply Chain Management. *Supply Chain Management: An International Journal*, 1 (2), 15-27.

Hoffman, E. and G.D. Libecap. (1991). Institutional Choice and the Development of US Agricultural Policies in the 1920s. *The Journal of Economic History*, 51 (2), 397-411.

Holmstrom, B. (1979). Moral Hazard and Observability. *The Bell Journal of Economics*, Vol. 10 (1), 74-91. (Available at http://links.jstor.org/sici?sici=0361-915X%28197921%2910%3A1%3C74%3AMHAO%3E2.0.CO%3B2-Q)

Hoppe, E.I. and P.W. Schmitz. (2010a). Public versus Private Ownership: Quantity Contracts and the Allocation of Investment Tasks. *Journal of Public Economics*, Vol. 94, 258-268.

Hoppe, E.I. and Schmitz, P.W. (2010b). The Costs and Benefits of Additional Information in Agency Models with Endogenous Information Structures. *Economics Letters*, Vol. 107, 58-62.

Hoppe, E.I. and P.W. Schmitz. (2009). Can Contracts Solve the Hold-Up Problem? Experimental Evidence, CEPR Discussion Paper #7205, Centre for Economic Policy Research.

Hu, D., T. Reardon, S. Rozelle, P. Timmer and H. Wang. (2004). The Emergence of Supermarkets with Chines Characteristics: Challenges and Opportunities for China's Agricultural Development. *Development Policy* Review, 22 (5), 557-586.

Hueth B. and T. Melkonyan. (2004). Identity Preservation, Multitasking and Agricultural Contract Design. *American Journal of Agricultural Economics*, 86 (3), 842-847.

Hueth, B. and P. Marcoul. (2003). An Essay on Cooperative Bargaining in U.S. Agricultural Markets. *Journal of Agricultural and Food Industrial Organization*, 1 (1), Article 10.

Hueth, B. and E. Ligon. (2002). Estimation of an Efficient Tomato Contract. European *Review of Agricultural Economics*, Vol. 29, 237-253.

Hueth, B., E. Ligon, S. Wolf and S. Wu. (1999). Incentive Instruments in Fruit and Vegetable Contracts: Input Control, Monitoring, Measuring, and Price Risk. *Review of Agricultural Economics*, Vol. 21, 374-389.

Iliopoulos, C. and M.L. Cook (1999). The Efficiency of Internal Resource Allocation Decisions in Customer-owned Firms: The Influence Costs Problems. Paper presented at the third Annual Conference of the International Society for New Institutional Economics, Washington, D.C., September, 16-18.

IRS (2006). Farmers ATG - Chapter Six - Raisin Grapes, July 2006. IRS report. http://www.irs.gov/Businesses/Small-Businesses-&-Self-Employed/Farmers-ATG-Chapter-Six-Raisin-Grapes-1 (Accessed March 8, 2013).

Jang, J. and F. Olson (2010). The Role of Product Differentiation for Contract Choice in the Agro-Food Sector. *European Review of Agricultural Economics*, Vol. 37: 251-273.

Kaiserl, H.M., D.J. Liu and T. Consignado. (2003). An Economic Analysis of California Raisin Export Promotion. *Agribusiness*, 19 (2), 189–201.

Kale, P., Singh, H., and Perlmuter, H. (2000). Learning and protection of proprietary assets in strategic alliance: Building relational capital. *Strategic Management Journal*, Vol. 21, 217-237.

Kerr, William. (2013). Personal communications. Bioresource Policy, Business and Economics, University of Saskatchewan.

Kim, Jin-Young. (2013). Development of Agricultural Cooperatives for Revitalization of the Rural Community – Focused on the Case Study of 'Sunkist'. *International Journal of Smart Home*, 7 (3), 293-300.

Kirkman, C. H. Jr. (1975). The Sunkist Adventure. Farmer Cooperative Service, U.S. Department of Agriculture, Washington, DC.

Klein, B., R. Crawford and A. Alchian. (1978). Vertical Integration, Appropriable Rents, and the Competitive Bidding Process. *Journal of Law and Economics*, Vol. 21, 297-326

Koss, P.A. and B.C. Eaton. (1997). Co-specific investments, hold-up and self-enforcing contracts. *Journal of Economic Behavior and Organization*, Vol. 32, 457-470.

Kosteroski, B. (2013). ACS Value Chain Specialist. Personal communications.

Kyriakopoulos, Kyriakos (2000). The Market Orientation of Cooperative Organizations. Van Gorcum, Assen.

Lang, K.A. (2006). Cognition, Agency Theory and Organizational Failure: A Saskatchewan Wheat Pool Case Study. A Master of Science thesis, Department of Agricultural Economics, University of Saskatchewan.

Leiblein, M.J. and D.J. Miller. (2003). An Empirical Examination of Transaction and Firm Level Influences on the Vertical Boundaries of the Firm. *Strategic Management Journal*, Vol. 24, 839-859.

Leibler, J., J. Otte and E. Silbergeld. (2008). *Zoonotic Disease Risks and Socioeconomic Structure of Industrial Poultry Production: Review of the US Experience with Contract Growing*. Johns Hopkins University Bloomberg School of Public Health. (Available at http://www.fao.org/ag/againfo/programmes/en/pplpi/docarc/rep_0806_USPoultryIndustry_JLeibler_0808061.pdf)

Loureiro, M. and S. Hine. (2001). Discovering Niche Markets: A Comparison of Willingness to Pay for a Local (Colorado Grown), Organic, and GMO-Free Product. Selected Paper presented at Annual Meeting of the American Agricultural Economics Association, Chicago, August 5-8.

MacPherson, I. (1986). Missionaries of Rural Development: The Fieldmen of the Saskatchewan Wheat Pool, 1925–1965. *Agricultural History,* Vol. 60, 73–96.

Maddala, G. S. and E. Miller. (1989). *Microeconomics: Theory and applications*. New York: McGraw-Hill.

Marion, B.W. (Ed.) (1976). *Vertical Coordination and Exchange Arrangements, Concepts and Hypotheses*. Coordination and Exchange in Agricultural Subsectors. College of Agriculture and Life Sciences, University of Wisconsin, Madison, USA.

Markelova, H., R. Meinzen-Dick, J. Hellin and S. Dohrn. (2009). Collective Action for Smallholder Market Access. *Food Policy*, 34 (1), 1–7.

Masten, S.E. (2000). Transaction-cost Economics and the Organization of Agricultural Transactions. *Advances in Applied Microeconomics*, Vol. 9, 173-195.

Merlo, C. (1993). Heritage of Gold: The First 100 Years of Sunkist Growers, Inc. 1893-1993. Sherman Oaks, CA, Sunkist Growers Inc.

Mighell, R. L., and A. J. Lawrence. (1963). *Vertical Coordination in Agriculture*. Agricultural Economic Report No. 19, US Department of Agriculture, Economic Research Service.

Miles, M. B., and A. M. Huberman. (1994). Qualitative Data Analysis: An Expanded Source Book (2nd ed.). Sage, Thousand Oaks, CA.

Milford, A.B. (2012). The Pro-competitive Effect of Coffee Cooperatives in Chiapas, Mexico. *Journal of Agricultural and Food Industrial Organization*, 10 (1), 1362.

Milgrom, P.R. and M.J. Roberts. (1992). Economics, Organization and Management. Prentice-Hall, Englewood Cliffs, NJ.

Miller, G.J. (2005). Solutions to Principal-agent Problems in Firms. In *C. Menard and M. M. Shirley (Eds.), Handbook of new institutional economics*. Dordrecht, The Netherlands: Springer, pp. 349-370

Morrison, A.M. and D.J. Anderson. (2002). Destination Branding. Paper presented at the *Missouri Association of Convention and Visitor Bureaus Annual Meeting*.

Moses, H.V. (1995). G. Harold Powell and the Corporate Consolidation of the Modern Citrus Enterprise, 1904-1922. *The Business History Review*, 69 (2), 119-55.

Narrod, C., D. Roy, , J. Okello, B. Advendano, K. Rich, and A. Thorat. (2009). Public Private Partnerships and Collective Action in High Value Fruit and Vegetable Supply Chains. *Food Policy*, 34 (1), 8-15.

N'oldeke, G. and K. M. Schmidt (1995). Option Contracts and Renegotiation: a Solution to the Hold-up Problem. *Rand Journal of Economics*, Vol. 26, 163-179.

Ohlendorf, S. (2009). Expectation Damages, Divisible Contracts, and Bilateral Investment," American Economic Review, *American Economic Association*, 99 (4), 1608-1618.

Ollila, P. (2009). *Principles of Institutional Economics: with Applications to Cooperative Enterprises*. University of Helsinki, Department of Economics and Management, Working papers 56.

Ollila, P. and J. Nilsson. (1995). The Position of Agricultural Cooperatives in the Changing Food Industry of Europe. Paper presented at the Workshop on "Institutional Changes in the Globalized Food Sector - Agricultural Cooperatives, Multinationals", held at the European Institute for Advanced Studies in Management, Brussels, April 27-28.

Osborne, Th. (2005). Imperfect Competition in Agricultural Markets: Evidence from Ethiopia. *Journal of Development Economics*, Vol. 76, 405–428.

Overseas Cooperative Development Council (2009). Creating Clarity: Assessment, Analysis and Outreach for Cooperative Legal Reform. The Cooperative Law and Regulation Initiative, Vol. 2.
http:// www.ocdc.coop/pdf/creating_clarity_english.pdf (Accessed March 5, 2013).

Page, S. and R. Slater. (2003). Small Producer Participation in Global Food Systems: Policy Opportunities and Constraints. *Development Policy Review*, Vol. 21, 641-654.

Peterson, H.C., A. Wysocki, and S.B. Harsh. (2001). Strategic Choice along the Vertical Coordination Continuum. *International Food and Agribusiness Management Review*, Vol. 4, 149-166.

Pindyck, R. and D. Rubinfeld. (2001). Microeconomics (5nd ed.). Page Prentice-Hall, London.

Pisano, G. P. (1989). Using Equity Participation to Support Exchange: Evidence from the Biotechnology Industry. *Journal of Law, Economics, and Organization*, 5 (1), 109-126.

Prairie Fresh Food Corporation. (2013). Unpublished Establishment Report.

Pritchard, N. T. (1964). The Federal Raisin Marketing Order. Marketing Economics Division, Economic Research Service, U.S. Department of Agriculture.

Ragan, C.T.S. and R.G. Lipsey. (2005). Microeconomics (11nd Canadian ed.). Pearson Education Canada Inc. Ontario.

Raisin Administrative Committee. (2013). Marketing Policy. http://www.raisins.org/index.php/marketing/marketing-policies (Accessed May 1, 2013).

Raisin Administrative Committee. (2007). Analysis Report 2006. http://www.raisins.org/files/analysis_report/2006.pdf (Accessed May 1, 2013).

Raisin Administrative Committee. (2003). Marketing Policy 1970-1971, Marketing Season trough 2002-2003 Marketing Season. Fresno, California.

Raisin Administrative Committee. (1999). Raisin Administrative Committee 1999–2000 analysis report. Fresno, California.

Raisin Administrative Committee. (1997). Raisin Marketing Policy, 1996-97 marketing season.

Reardon, T., and J. Berdegué (2002). The Rapid Rise of Supermarkets in Latin America: Challenges and opportunities for development. *Development Policy Review*, 20(4), 371-3 88.

Richardson, L. and E.A. St. Pierre. (2005). Writing: A Method of Inquiry. In *Denzin, N. K. and Linkoln, Y. S. (eds.): The Sage Handbook of Qualitative Research (pp 516-529).* Sage Publications.

Robinson, J. (1933). The Economics of Imperfect Competition. London: Macmillan., 352 pp.

Royer JS. (1999). Cooperative Organizational Strategies: A Neo-institutional Digest. *Journal of Cooperatives*, Vol. 14, 44-67.

Rural Business and Cooperative Development Service (1994). Cooperatives in the U.S.-Citrus Industry (Dec 1994). RBCDS, Research Report #137.

Saccomandi and Van Der Ploeg (1998). Agricultural Market Economics: A Neo-institutional Analysis of the Exchange, Circulation and Distribution of Agricultural Products. Assen, the Netherlands: Van Gorcum.

Sanford, J. (2005). The Great Wheat Hope: Testing the Waters in the New Saskatchewan Wheat Pool. *Canadian Business*, 78 (8), 70-71.

Saskatchewan Ministry of Agriculture. (2012). Statistics Fact sheet.

http://www.agriculture.gov.sk.ca/Default.aspx?DN=6dae21c7-fdfe-4e7d-bd31-ddcb176618f4 (Accessed September 2, 2013).

Saskatchewan Ministry of Agriculture. (2010). Saskatchewan Agri-Food Exports 2003-2009. Fact sheet. http://www.agriculture.gov.sk.ca/Default.aspx?DN=0a96427c-4c82-426f-8763-2309a15177a1 (Accessed June 1, 2012).

Saskatchewan Ministry of Agriculture. (2008a). Summary of agriculture in Saskatchewan. http://www.agriculture.gov.sk.ca/Saskatchewan_Picture (Accessed May 20, 2013).

Saskatchewan Ministry of Agriculture. (2008b). Saskatchewan agriculture annual report, 2007-08. http://www.agriculture.gov.sk.ca/Default.aspx?DN=f47e74f8-d1a3-444f-8230-b052e9c5252b (Accessed July 31, 2013).

Saskatchewan Ministry of Agriculture. (2005). Market Garden Selling, April 2005. http://www.agriculture.gov.sk.ca/Default.aspx?DN=88bcf17c-ad8b-45ed-82fd-7cc615333fdf (Accessed August 10, 2013).

Saskatchewan Ministry of Agriculture. (2002). An Act to Amend The Saskatchewan Wheat Pool Act 1995. Saskatchewan Wheat Pool. Bill No. 304. (Available at http://www.qp.gov.sk.ca/documents/english/Private/Members/2002/bill-304.pdf

Saskatchewan Vegetable Growers Association, (2013). http://www.svga.ca/

Sauvée, L. (1998). Toward an Institutional Analysis of Vertical Coordination in Agribusiness. In *Royer, J.S. and R.T. Rogers (eds.)*, The Industrialization of Agriculture: Vertical Coordination in the US Food System, Aldershot, UK: Ashgate Publishing Ltd., pp. 27–71.

Sayre, J.E. and A.J. Morris. (1999). Principles of Microeconomics (2nd ed.). McGraw-Hill Ryerson Limited.

Schaffer, J.D., (1986). Thinking about Farmers' Cooperatives, Contracts and Economic Coordination. Cooperative Theory – New Approaches, USDA, Agricultural Cooperative Service Report, 18, 61-86.

Scherer, F.M. (1980). Industrial Market Structure and Economic Performance (2nd ed.). Boston.

Schoenbrod, D. (1995). Power Without Responsibility: How Congress Abuses the People Through Delegation. Yale University Press.

Schmitz, P.W. (2002). On the Interplay of Hidden Action and Hidden Information in Simple Bilateral Trading Problems. *Journal of Economic Theory,* Vol. 103, 444-460.

Seftel, H. (1985). Government Regulation and the Rise of the California Fruit Industry: The Entrepreneurial Attack on Fruit Pests, 1880-1920. *The Business History Review,* 59 (3), 369-402.

Sexton, R.J. (1990). Imperfect Competition in Agricultural Markets and the Role of Cooperatives: a Spatial Analysis. *American Journal of Agricultural Economics*, 72(3), 709-720.

Shuker, R. and A. Stadnyk, (2008). History of Canada's Seasonal Agricultural Workers Program (SAWP). New Media Journalism, University of Western Ontario.

Simon, H.A. (1961). *Administrative Behavior* (2nd ed.). New York, Macmilan..

Smith, C. (2004). A Cooperative Evolution-Sunkist Competes in the Global Market. USDA Agricultural Outlook Forum, Washington, DC.

Staatz, J.M. (1987b). The Structural Characteristics of Farmer Cooperatives and Their Behavioural Consequences. In J. Royer, ed., Cooperative Theory: New Approaches, pp 33-60. Washington, DC: U. S. Department of Agriculture.

Staatz, J.M. (1984). A Theoretical Perspective on the Behaviour of Farmers' Cooperatives. Ph.D. Dissertation, Michigan State University.

Statistics Canada. (2012a). Fruit and Vegetable Production. Catalogue No. 22-003-X. ISSN 1480-7602. Agriculture Division Crops Section, Ottawa, ON. http://www.statcan.gc.ca/pub/22-003-x/22-003-x2011002-eng.pdf (Accessed December 11, 2012).

Statistics Canada. (2012b). Farm Cash Receipts. Ottawa, ON: Agriculture Division. http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/agri04a-eng.htm (Accessed February 1, 2013).

Statistics Canada. (2011). Census of Agriculture. http://www.statcan.gc.ca/ca-ra2011/index-eng.htm (Accessed December 11, 2012).

Statistics Canada. (2009). Food Statistics. Catalogue No. 21-020-X. ISSN 1705-2920. Agriculture Division Crops Section, Ottawa, ON. http://www.statcan.gc.ca/pub/21-020-x/21-020-x2009001-eng.pdf (Accessed December 11, 2012).

Statistics Canada. (2003a). Food Expenditure in Canada - 2001 (Catalogue No. 62-554-XIE). Ottawa, ON: Income Statistics Division. (Released February 2003).

Statistics Canada. (2003b). Food Statistics - 2002, Vol.2, No.2 (Catalogue No. 21-020-XIE). Ottawa, ON: Agriculture Division. (Released October 2003)

Stiglitz, J., and A. Weiss (1981). Credit Rationing in Markets with Imperfect Information. American Economic Review, 71 (3), 393-410.

Stremitzer, A. (2010). Standard Breach Remedies, Quality Thresholds, and Cooperative Investments. The Journal of Law, Economics, and Organization, 28 (2), 337-359.

Sunkist (2013). About Sunkist. http://www.sunkist.com/about/default.aspx (accessed August 10, 2013).

Sunkist Growers, I. (2011). Sunkist 2010 Annual Report. Retrieved 05/13, 2011. http://www.sunkist.com/CMSFiles/file/PDF/sunkist-annual-report-2010.pdf (Accessed September 1, 2013).

Sykuta M. E. and F. R. Chaddad. (1999). Putting Theories of the Firm in Their Place: A Supplemental Digest of the New Institutional Economics. *Journal of Cooperatives*, Vol. 14, 68-76.

Szabo, G.G. (2006). Co-operative Identity- a Concept for Economic Analysis and Evaluation of Co-operative Flexibility: The Dutch Practice and the Hungarian Reality in the Dairy Sector. *Journal of Co-operative Studies*, 39 (3), 11-26.

Tennbakk, B. (1996). Market Behaviour of Agricultural Cooperatives. Dissertation in Economics, Department of Economics, University of Bergen.

The Agriculture Council of Saskatchewan Inc. (2011). Annual Report, 2010-2011. http://www.agcouncil.ca/pdf/ACS%202010%202011%20Annual%20Report.pdf (accessed August 10, 2013).

The Canadian Encyclopedia. (2013). Grain Handling and Marketing. http://www.thecanadianencyclopedia.com/articles/grain-handling-and-marketing (Accessed September 1, 2013).

Townsend-Zellner, N. (1961). The Effect of Marketing Orders on Market Structures and Some Consequent Market Developments. *Journal of Farm Economics*, 43 (5), 1357-1365.

Townsend-Zellner, N. (1964). The Federal Raisin Marketing Order: An Analysis of the First Ten Years 1949-1958. USDA Report – ERS.

Trechter, D.D., King, R.P., and Walsh, L. (2002). Using Communications to Influence Member Commitment in Cooperatives. *Journal of Cooperatives*, Vol. 17, 14–32.

United Food and Commercial Workers. (2009). Canada Report on the Status of Migrant Farm Workers in Canada 2008-2009.

US Department of Agriculture. (2005). Dried Fruit (Raisin) Situation and Outlook in Selected Countries. Foreign Agricultural Service. http://www.fas.usda.gov/htp/Hort_Circular/2002/02-07/Stats/raisin.prn.pdf (Accessed April 1, 2013).).

US Department of Agriculture, Foreign Agricultural Service. (2003). Gain Report. Market Development Reports - Packaging and Retailing Trends for Fresh Produce in Canada 2003.

US Department of Agriculture, Economic Research Service. (2002). Oranges: The Most Consumed Fruit in America." In Fruit and Tree Nuts Outlook. FTS-296, January 31, 12-15.

Valentinov, V. (2009). Third Sector Organizations in Rural Development: A Transaction Cost Perspective. *Agricultural and Food Science*, 18 (1), 3-15.

Van Dijk, G. (1997). Implementing the Sixth Reason for Co-operation: New Generation Co-operatives in Agribusiness. In *J. Nilsson and Van Dijk G. (eds.), Strategies and Structures in the Agro-food Industries* (pp. 94-110). Assen, The Netherlands: Van Gorcum.

Verschuren, P. and H. Doorewaard. (1999). *Designing a Research Project*. Lemma, Utrecht, The Netherlands.

Vogel, D. (1995). Trading Up. Consumer and Environmetal Regulation in a Global Economy. Harvard University Press, Cambridge, MA.

Voss, C., N. Tsikriktsis, and M. Frohlich. (2002). Case Research in Operations Management. *International Journal of Operations and Production Management*, 22 (2), 195 -219.

Wang, Li-na and Li-li Lu (2012). Research on Coordination in Supply Chain for Perishable Goods Based on Quality Risk. *Advances in Intelligent and Soft Computing*, Vol. 161, 501-509.

Weseen, S., J.E. Hobbs and W.A. Kerr. (2014). Reducing Hold-up Risks in Ethanol Supply Chains: A Transaction Cost Perspective. *International Food and Agribusiness Management Review*, 17 (2), 83-106.

Williamson, O.E. (2004). Transaction Cost Economics and Agriculture: An Excursion. In G. Van Huylenbroeck, W. Verbeke and L. Lauwers (Eds.), Role of Institutions in Rural Policies and Agricultural Markets (pp. 19-38). Amsterdam, The Netherlands: Elsevier B.V.

Williamson, O.E. (2000). The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature*, Vol. 38, 595–613.

Williamson, O.E. (1989). Transaction Cost Economics. In: *R. Schmanlensee & R. Willig (eds.), Handbook of Industrial Organization*, Vol. 1, 136-82, Amsterdam: Elsevier Science.

Williamson, O.E. (1985). The Economic Institutions of Capitalism. Firms, markets, relational contracting. New York: The Free Press.

Williamson O.E. (1981a). The Economics of Organization: The Transaction Cost Approach. *The American Journal of Sociology*, 87 (3), 548-577.

Williamson, O.E. (1981b). The Modern Cooperation: Origins, Evolution, Attributes. *Journal of Economic Literature*, Vol. 4, 1537-1568.

Williamson, O.E. (1979). Transaction-Cost Economics: The Governance of Contractual Relations. *Journal of Law and Economics*, 22 (2), 233-261.

Williamson, O.E. (1975). Markets and Hierarchies: Analysis and Antitrust Implications. New York, NY: The Free Press.

Winters, P., P. Simmons, and I. Patrick. (2005). Evaluation of a Hybrid Seed Contract Between Smaliholders and a Multinational Company in East Java, Indonesia. *The Journal of Development Studies*, 41 (1), 62-89.

World Bank. (2002). Building Institutions for Markets. World Development Report 2002. Published for the World Bank, Oxford University Press.

Yin, Robert K. (2003). *Case Study Research: Design and Methods* (3rd Ed.). Thousand Oaks, CA: Sage Publications.

Yin, R.K. (1994). *Case Study Research: Design and Methods* (2nd Ed.). Newbury Park, CA: Sage Publications.

Yin, R.K. (1989). *Case Study Research: Design and Methods*. Newbury Park, CA: Sage Publications.

Appendix A

Participant Consent Form

You are invited to participate in a study entitled: "Insights into the Fresh Vegetable Sector of Saskatchewan". Please read this form carefully, and feelm free to ask questions you might have.

Researcher: Maryam Ahooghalandari (MSc Student),

Department of Bioresource, Policy, Business and Economics

Tel: (306) 966-1981

Email: maryam.ahoo@usask.ca

Project Title: Insights into the Fresh Vegetable Sector of Saskatchewan (**this study is part of a MSc thesis**)

Supervisor:

William J. Brown, U of Sask BPBE Dept, 966-4011, bill.brown@usask.ca

Purpose(s) and Objective(s) of the Research:

The current study is a part of MSc thesis and will provide an understanding of the Saskatchewan Grocery Retail and Foodservice Value Chain Initiative which is promoted by the Agriculture Council Saskatchewan (ACS). ACS intends to coordinate a group of vegetable growers from across the province and have them supply their products to grocery stores through a number of distribution centers. This new organization, despite its numerous benefits, will test the farmer participant's resolve to cooperate rather than proceed alone. Farmer participation often faces limits and barriers that hinder them from performing their roles and functions, for instance: financing problems, marketing difficulties, legislative 'legal' obstacles and member loyalty. Economists have been developed methods for analyzing organizational forms and their relationships within the market system which enhance our understanding of motivations behind and the consequences of developing this organization. The theories that were described in literature include transaction cost economics (TCE), agency theory, the core competencies approach, strategic management theory, property rights analysis and convention theory.

Procedures:

A survey will be designed to capture the attitudes and perceptions of wholesaler with regard to their feedback of organization and the future of it.

The project time is from 09/01/2013 to 10/30/2013.

The participants only need to answer those questions they are comfortable with during the interview.

Funded by:

Alliance for Food and Bioproducts Innovation Scholars Program

Potential Risks:

This is non-risk project which has no risk of psychological or emotional, physical, social. No aspects of the study are anticipated to include risk or harm to participants. No participant deception will be involved in this program of research.

Confidentiality:

Although the data from this research project will be published and presented at conferences, the data will be reported in aggregate form, so that it will not be possible to identify individuals. Moreover, the Consent Forms will be stored separately from the (materials used), so that it will not be possible to associate a name with any given set of responses. Because the participants for this research project have been selected from a small group of people, all of whom are known to each other, it is possible that you may be identifiable to other people on the basis of what you have said.

The data will be in the care and administration of the Department of Bioresource Policy, Business and Economics, University of Saskatchewan under password protected computer files. The data will be securely stored in the Department for the required period of six years following the completion of the research work. The data may be held longer if it is considered to be needed for researchers' future work but following the same considerations mentioned in this document regarding confidentiality and anonymity.

Right to Withdraw:

Your right to withdraw data from the study will apply until results have been disseminated. After this it is possible that some form of research dissemination will have already occurred and it may not be possible to withdraw your data

Follow up:

After your interview, and prior to the data being included in the final report, you will be given the opportunity to review the transcript of your interview, and to add, alter, or delete information from the transcripts as you see fit.

Questions or Concerns:

- Contact the researcher(s) using the information at the top of page 1;
- **This research project has been approved on ethical grounds by the University of Saskatchewan Research Ethics Board. Any questions regarding your rights as a participant may be addressed to that committee through the Research Ethics Office** ethics.office@usask.ca **(306) 966-2975. Out of town participants may call toll free (888) 966-2975.**

SIGNED CONSENT

Your signature below indicates that you have read and understand the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project. A copy of this Consent Form has been given to me for my records.

_____	_____	_____
Name of Participant	*Signature*	*Date*

_____ _____

Researcher's Signature *Date*

A copy of this consent will be left with you, and a copy will be taken by the researcher.

Appendix B
(Interview Questions)

Insights into the Fresh Vegetable Sector of Saskatchewan (OPPORTUNITIES AND CHALLENGES)

Farm and Community Characteristics

1. How many acres of vegetables are you putting into production this season?

2. How many years have you been growing vegetables?

3. What vegetable crops do you currently grow?

_____
_____
_____
_____
_____

4. Do you have irrigated land? What % of planted area? _____

5. Specify what proportion of your production is sold by each of the following?

	Percent (%)
Road side stand	
Farmers' markets	
U-pick operations	
Prairie Fresh Corporation	
Other	

6. Would you expect to see an increase in sales over the next 3 years?
   Yes
   No

7. In what sales area will this growth occur?

	Growth Percent (%)
Road side stand	
Farmers' markets	
U-pick operations	
Prairie Fresh Corporation	
Other	

8. Based on your own views or perceptions, how does marketing fresh vegetables through the Prairie Fresh Corporation compare to your past marketing practices?

Much worse	1
Worse	2
Equal	3
Better	4
Much better	5

9. What % of your sales are you willing to sell through the Prairie Fresh Food Corporation?

0 - 20
21 - 40
41 - 60
61 - 80
81 - 100

10. What has been the dollar value of your investment in vegetable production over the past 24 months?

None
$1,000 - $10,000
$10,001 - $25,000
$25,001 - $50,000
$50,001 - $100,000
$100,001 and over

11. What might be the dollar value of future investment to increase your capacity over the next 1-3 years?

None
$1,000 - $10,000
$10,001 - $25,000
$25,001 - $50,000
$50,001 -$100,000
$100,001 and over

12. How do you value your membership in the Prairie Fresh Corporation?

Extremely Value	1
High Value	2
Medium Value	3
Low Value	4

13. How important are each of the following factors in your choice to market through the Prairie Fresh Food Corporation? (Circle the Number)

Factor	Unimportant	/ less important	/ neutral	/ Important	/ Highly important
Type of vegetable produce	1	2	3	4	5
Quantity of vegetable produce	1	2	3	4	5
Food safety and grading compliance requirement	1	2	3	4	5
Production requirement (input and finance)	1	2	3	4	5
Access to price information	1	2	3	4	5
Payment mechanism (Speed of payment)	1	2	3	4	5
Flexibility and trust	1	2	3	4	5
Other (Please specify)					

14. Please rate the benefits of your membership in the Prairie Fresh Corporation. (Please circle the appropriate value.)

In following ways Strongly agree/Moderately agree/Neutral/Moderately disagree/Strongly disagree

Networking among members	1	2	3	4	5
Resources pooling	1	2	3	4	5
Increasing business knowledge	1	2	3	4	5
Increasing knowledge of the Canadian grocery retail industry	1	2	3	4	5
Increasing knowledge of the Canadian food service industry	1	2	3	4	5
Economic development	1	2	3	4	5
Obtaining financing	1	2	3	4	5
Better knowledge of the industry costing program	1	2	3	4	5
Other (please specify)					

15. What are your challenges for future growth within the Prairie Fresh Corporation? (Please circle the appropriate value)

In following ways	Very low	Low	Moderate	High	Very high
Land	1	2	3	4	5
Equipment	1	2	3	4	5
Market access	1	2	3	4	5
Staff (Labor)	1	2	3	4	5
Technology	1	2	3	4	5
Capacity (structure)	1	2	3	4	5
Other (please specify)	1	2	3	4	5

16. How difficult in accessing information in the new agreement?

Very low	1
Low	2
Moderate	3
High	4
Very high	5

17. How confident are you in your staff to meet the present retailer quality grade specifications?

Very low	1
Low	2
Moderate	3
High	4
Very high	5

18. How important is the Canadian vegetable grading compliance program to your business? (Circle one)

Very low importance	1
Low importance	2
Moderate importance	3
High importance	4
Very high importance	5

19. How important is it to your business to ensure that all the vegetables are meeting compliance?

Very low importance	1
Low importance	2
Moderate importance	3
High importance	4
Very high importance	5

20. How important is it to your business to follow your competitor's marketing strategies?

Not important	1
Low important	2
Moderate important	3
High important	4
Extremely important	5

21. Overall, how satisfied are you with the management team of The Grocery People?

Very dissatisfied	1
Dissatisfied	2
Neutral	3
Satisfied	4
Very satisfied	5

22. What is the value of the services provided by the value chain specialist?

Very low	1
Low	2
Moderate	3
High	4
Very high	5

23. How much knowledge have you gained within the last 12 months in working with the Value Chain Specialist? (Circle one)

Very low	1
Low	2
Moderate	3
High	4
Very high	5

24. What might be the future growth areas within the Prairie Fresh Corporation? (Please check one)

Vegetables
Vegetables Value add
Fruit
Fruit Value add
Green house
Green house Value add

25. What area of support do you see the Prairie Fresh Corporation needing in the future?

Finance
Distribution
Production
Others (please specify)

26. How important will the Prairie Fresh Corporation be for the marketing of fresh vegetable in the future? (Circle one)

Very important	1
Important	2
Neutral	3
Unimportant	4
Very unimportant	5

27. What is your % increase in sales to Canadian grocery chains from last year to this year?